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INTERACTIONAL AERODYNAMICS OF THE SINGLE ROTOR HELICOPTER CONFIGURATION

VOLUME IV-D - One-Third Octave Band Spectrograms of Wake Split-Film Data, Open Hubcaps

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APPLIED TECHNOLOGY LABORATORY POSITION STATEMENT

In 1975 a wind tunnel test program was conducted in the Boeing-Vertol 20-foot V/STOL Wind Tunnel on a 1/5th-scale UTTAS model to investigate and find solutions for several aerodynamic problems encountered during the UTTAS flight-testing. Specifically, these tests focused upon (a) the structure of the hub/rotor wake in the vicinity of the empennage, (b) the formulation of the ground vortex and its relation to hub loads and fuselage loads during transition, and (c) the occurrence of vibratory air pressures from the blade passing over the fuselage. Only portions of the above-mentioned wind tunnel test data were reduced and analyzed in addressing the flight-test problems of the UTTAS aircraft.

Under Contract DAAJ02-77-C-0020, Boeing-Vertol completed analyses on the data to understand more completely the aerodynamic interactions that are involved and to formulate instructions for the guidance of designers in these respects. The results of these studies are applicable to all existing and future single-rotor/tail rotor helicopters. The data have been segregated according to aerodynamic interactions and associated phenomena/problem areas. From this body of knowledge, a generalized set of design guidelines meaningful to the single-rotor helicopter design concept formulation were developed and are included in these reports.

Mr. Robert P. Smith of the Aeronautical Technology Division, Aeromechanics Technical Area, served as project engineer for this effort.

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Volume IV of an eight volume report.
Volume IV is comprised of seven sub-volumes (A thru G)

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Wake	Flow Environment	Powered Model
Flow	Configuration	Hub Cap
Interaction	Empennage	
Aerodynamic Interaction	Flow Modifier	

20. ABSTRACT *(Continue on reverse side if necessary and identify by block number)*

This is the fourth of the seven sub-volumes of Volume IV containing one-third octave band spectrographs of the model helicopter hub/rotor wake as it was modified by various aerodynamic devices. This sub-volume deals with the effects of various open hubcaps. Open caps have parallel undersides and uppersides.

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PREFACE

The entire report describing the investigation of INTERACTIONAL AERODYNAMICS OF THE SINGLE-ROTOR HELICOPTER CONFIGURATION comprises eight numbered volumes bound as 33 separate documents. The complete list of these documents is as follows:

Volume I, Final Report

Volume II, Harmonic Analyses of Airframe Surface Pressure Data
- A – Runs 7-14, Forward Section
- B – Runs 7-14, Mid Section
- C – Runs 7-14, Aft Section
- D – Runs 15-22, Forward Section
- E – Runs 15-22, Mid Section
- F – Runs 15-22, Aft Section
- G – Runs 23-33, Forward Section
- H – Runs 23-33, Mid Section
- I – Runs 23-33, Aft Section

Volume III, Flow Angle and Velocity Wake Profiles in Low-Frequency Band
- A – Basic Investigations and Hubcap Variations
- B – Air Ejector Systems and Other Devices

Volume IV, One-Third Octave Band Spectrograms of Wake Split-Film Data
- A – Buildup to Baseline
- B – Basic Configuration Wake Explorations
- C – Solid Hubcaps
- D – Open Hubcaps
- E – Air Ejectors
- F – Air Ejectors With Hubcaps; Wings
- G – Fairings and Surface Devices



Volume V, Harmonic Analyses of Hub Wake

Volume VI, One-Third Octave Band Spectrograms of Wake Single Film Data
- A – Buildup to Baseline
- B – Basic Configuration Wake Exploration
- C – Hubcaps and Air Ejectors

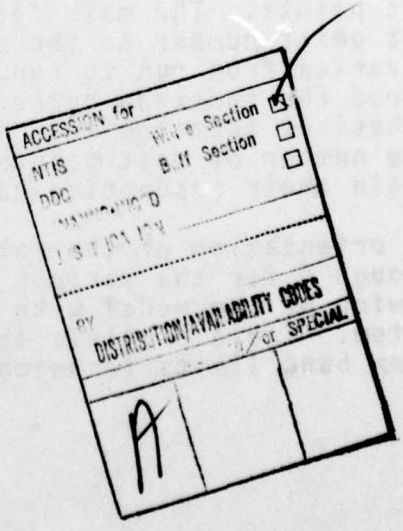
Volume VII, Frequency Analyses of Wake Split-Film Data
- A – Buildup to Baseline
- B – Basic Configuration Wake Explorations
- C – Solid Hubcaps

D – Open Hubcaps
E – Air Ejectors
F – Air Ejectors With Hubcaps; Wings
G – Fairings and Surface Devices

Volume VIII, Frequency Analyses of Wake Single Film Data
A – Buildup to Baseline
B – Basic Configuration Wake Exploration
C – Hubcaps and Air Ejectors

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INTRODUCTION

Volume IV presents spectrograms of the flow angles and velocity components for each run and its test points. Specifically, these machine plots show the root mean square value of each wake parameter over discrete frequency intervals one-third of an octave band in width. The octave arrangement is selected to provide 19 spectral increments from 3.9 to 250.0 Hz centerband frequency. A special computer program is employed to derive wake parameters within these bands consistent with corresponding basic spectral functions depicted in Volume VII.

The graphs showing the one-third octave band values are sequenced in the same order as the Outline of Wake Investigations (Table 1). These graphs are distributed among Volumes IV-A through IV-G by the major categories of Table I in the following arrangement:

Volume IV-A	Build-up to Baseline
Volume IV-B	Basic Configuration
Volume IV-C	Effect of Hub Caps Section 1 & 2
Volume IV-D	Effect of Hub Caps Section 3 & 4
Volume IV-E	Effect of Hub Caps Section 5 and Effect of Air Ejectors
Volume IV-F	Air Ejectors with Open Hub Caps and Effect of Wings and Misc. Section
Volume IV-G	Effect of Wings and Misc. Sections 2 and 3

The Table I outline and other material is included for reference and as a context to the work of each sub-volume. Table 2, the List of Test Runs, arranges the runs in numerical order and gives pertinent text parameters.

The Index of Rake Positions, Table 3, lists the hot film transducer rake positions in the model coordinate system for each run and its test points. The main feature of Table 3 is the indexing of the test point number to the model waterline station and butt line as it varied from run to run. The table groups the runs as they shared the indexing correspondence of point with position. It is emphasized that the runs in a group do not necessarily all share the same number of test points but they do have same correspondence within their respective ranges of test points.

The orientation of the rake is shown pictorially in Figures 1 through 6 for the various test runs. Figure 7 presents a scaled drawing of the model with reference to the three-axis coordinate system. Table 4 lists the center frequency and the upper and lower band limits for each of the numbered one-third octave bands.

TABLE 1

OUTLINE OF WAKE INVESTIGATIONS

Description	Configuration Code	Run No.	Base-line
Build-up to Baseline			
1. Nacelles removed	$K_{13}+H_1-N$	149	150
2. Blades off, rotating hub	$K_{13}-M+H_{1.0}$	160	156
3. " " , non-rotating hub	$K_{13}-M+H_{1.0}$	158	156
4. " " , hub off	$K_{13}-M-H_{1.0}$	159	156
Basic Configuration			
1. Wake Explorations near Empennage			
(a) 15" Long. + traverse at T/R C.L.	K_{11}	111	---
(b) 9" Vert. + " above T/R "	"	112	---
(c) 2" " " in vortex	"	113	---
(d) 8" " " (continue 112)	"	114	---
(e) 13" " " behind stab.	"	115	---
(f) Lateral traverse, left stab. (One T.P. only)	"	116	---
(g) Same continued	"	117	---
(h) Same continued (One T.P. only)	"	118	---
(i) Lateral traverse right stab.	"	119	---
(j) T/R effect on wake	$K_{11}+T_2^0$	121	115
2. Climb/Descent Studies			
(a) Climb 900 FPM	K_{11}	135	---
(b) Descent 800 FPM	"	136	---
Effect Of Hub Caps			
1. Solid Caps on Canister			
(a) 7.6" diam. 2.17" ht. soft Pitch Arms	$K_{11}-H_{1.0}+H_{1.2}$	137	136
(b) 7.6" diam. 2.17" ht. stiff Pitch Arms	$K_{13}+H_{1.2}$	153	156
(b) 7.6" diam. 2.45" ht. flt. test config.	$K_{13}+H_{1.2.1}+I_\Gamma+E_{1.0}$	207	188

TABLE 1 (CONTINUED)

OUTLINE OF WAKE INVESTIGATIONS

Description	Configuration Code*	Run No.	Base-line
Effect of Hub Caps (Continued)			
2. Solid Caps Raised Above Canister			
(a) 7.6" diam. 2.45" ht. 70" depth, .55 gap	$H_{1.2.2}+I_1+E_{1.0}$	208	188
(b) 10.0" diam. 3.25" ht. 1.55" depth, .50" gap	$H_{1.8.1}+I_1+E_{1.0}$	189	188
(c) 10.0" diam. 4.125" ht. 2.05" depth, .875" gap	$H_{1.8.2}+I_1+E_{1.0}$	190	188
(d) Repeat of 189	" " "	210	188
3. Open Caps Without Underbody			
(a) 10.0" diam. 1.25" gap,blades	$H_{1.0.2}+I_1+E_{1.0}$	193	188/166
(b) " " " gap, no blades	$H_{1.0.1}-M$	166	158
(c) " " 2.05" gap,blades	$H_{1.14.1}+I_1+E_{1.0}$	211	188
(d) " " 1.75" gap, no blades	$H_{1.0.1}-M$	165	158
(e) " " 1.87" gap,blades	$H_{1.0.3}+I_1+E_{1.0}$	191	188
(f) 16" diam. 2.00" gap,blades	$H_{1.7.1}$	168	156/167
(g) " " " gap, no blades	$H_{1.7.1}-M$	167	158
(h) " " 4.00" gap,blades	$H_{1.7.2}$	169	156
4. Open Caps with Underbody			
(a) 7.6" diam. 1.25" gap	$H_{1.11.1}+I_2+E_{1.0}$	194	188
(b) " " " "	$H_{1.11.1}+I_2+E_{4.0}$	198	188
(c) " " " " center post	$H_{1.11.2}+I_2$	202	194
(d) 10.0" diam. .5" gap, no blades	$H_{1.5.1}-M$	164	158
(e) " " 1.25" gap, no blades	$H_{1.5.2}-M$	161	158
(f) " " 2.0" gap, no blades	$H_{1.5.4}-M$	163	158
(g) " " 4.0" gap, no blades	$H_{1.5.3}-M$	162	158
(h) " " 1.25" gap	$H_{1.5.2}$	154	156/161

*Basic Code is K13.

TABLE 1 (CONTINUED)

OUTLINE OF WAKE INVESTIGATIONS

Description	Configuration Code*	Run No.	Base-line
5. Miscellaneous Hub Covers			
(a) Hub fairing 16" diam.	$H_{1.3}$	151	150
(b) Wham-O-Frisbee 10" diam.	$H_{1.9.0}+E_{1.2}$	182	181
(c) Fab. glass Frisbee 16" diam.	$H_{1.9.1}+E_{1.2}$	183	181
Effect of Air Ejectors			
1. Basic system no blowing	$H_{1.0}+E_{1.0}$	172	156
2. " " 40 psi	" "	173	156/172
3. " " 150 psi	" "	174	156/172
4. Wide chord shroud 40 psi	$H_{1.0}+E_{2.5.1}$	175	156/173
5. Wide " " 150 psi	" "	176	156/174
6. W/C shroud w. lip 40 psi	$H_{1.0}+E_{3.5.2}$	184	156/173
7. Same Contoured Parallel 150 psi	$H_{1.0}+E_{3.5.4}$	187	156/174
8. Bifurcated duct 0 psi	$H_{1.0}+E_{5.0}$	203	156
9. " " 40 psi	" "	204	156/203
10. " " 150 psi	" "	205	156/203
Air Ejectors with Open Hub Caps with Underbodies			
1. 7.6" diam. 1.25" gap, 0 psi	$H_{1.11.1}+I_2+E_{1.0}$	194	188/172
2. " " " " 20 psi	" " "	195	188
3. " " " " 40 psi	" " "	196	188/173
4. " " " " 150 psi	" " "	197	188/174
5. " " " " 0 psi	$H_{1.11.1}+I_2+E_{4.0}$	198	188/194
6. " " " " 40 psi	" " "	199	188/196
7. " " " " 150 psi	" " "	200	188/196
8. Same with center post	$H_{1.11.2}+I_2+E_{4.6}$	201	188/200
9. 10.0" diam. 2.0" gap wide ch'd. shroud (150 psi)	$H_{1.5.4}+E_{2.5.1}$	177	156/176
Effect of Wings and Misc.			
1. Wings			
(a) Nacelle-mounted stub wing	$H_{1.0}+W_{1.0}+E_{1.1}$	178	181
(b) Single slotted flapped wing	$H_{1.0}+W_{3.0}+E_{1.0}$	180	181
(c) Dougle slotted flapped wing	$H_{1.0}+W_{2.0}+E_{1.0}$	179	181
(d) Boom-mounted stub wing	$H_{1.0}+W_{4.0}$	186	156

*Basic Code is K13.

TABLE 1 (CONTINUED)

OUTLINE OF WAKE INVESTIGATIONS

Description	Configuration Code*	Run No.	Base-line
2. Crown Fairings			
(a) Flat top behind shaft	$K_{11}+D_1$	140	138
(b) Round top behind shaft	$K_{11}+D_2$	141	138
(c) Extended flat top fairing	H_1+D_4	170	156
(d) Flat top + 16" cap, 4" gap	$H_{1.7.2}+D_4$	171	170
(e) Forward fairing/nacelle fairing	$P_{1.0}$	152	156
3. Surface Devices			
(a) Vortex generators	$K_{11}+VG_{2.1}$	139	138
(b) Guidevane between nacelles	$K_{11}+FV_1$	142	138
(c) Longitudinal strakes	$H_{1.5.3}+S_4$	155	156
(d) 14% porosity spoiler	$K_{11}+X_1$	143	138

*Basic Code is K13 unless noted otherwise.

TABLE 2

LIST OF TEST RUNS

BASIC INVESTIGATIONS OF THE HUB WAKE

RUN NO.	CONFIGURATION/CONDITION	V_{TUN} KNOTS	RPM MR/TR	DISK LDG. psf	MODEL ANGLES		MR HT.	TAIL ROTOR
					$\alpha°$	$\psi°$	h/d	
111	K_{11}/15" Long. wake traverse at TR center line	80	1433/0	8	6.0	-2.0	∞	Off
112	" /9" Vert. wake traverse above TR center line	"	"	"	"	"	"	"
113	" /2" Vert traverse through MR vortex	"	"	"	"	"	"	"
114	" /8" Vert. traverse below TR center line	"	"	"	"	"	"	"
115	" /13" Vert. traverse behind stabilizer	"	"	"	"	"	"	"
116	" /Lateral traverse - left stabilizer	"	"	"	"	"	"	"
117	" /116 continued	"	"	"	"	"	"	"
118	" /116 continued	"	"	"	"	"	"	"
119	" /Lateral traverse - right stabilizer	"	"	"	"	"	"	"
121	$K_{11}+T_2$/Effect of tail rotor flow on wake	"	1433/ 4500	"	"	"	"	On
135	K_{11}/Wake in 900 fpm climb	"	"	"	-6.0	-4.5	"	Off
136	" /Wake in 800 fpm descent	"	"	"	6.0	-2.0	"	"

TABLE 2 (CONTINUED)
LIST OF TEST RUNS
EVALUATION OF WAKE-ALTERING DEVICES

RUN NO.	CONFIGURATION/CONDITION	V_{TUN} KNOTS	RPM MR/TR	DISK LDG. psf	MODEL ANGLES		MR HT.	TAIL ROTOR
					α°	ψ°	h/d	
137	K_{11}-$H_{1.0}$+$H_{1.2}$/Effect of 7.6 inch diam. solid hub cap	80	1433/0	8	6	-3.8	∞	Off
138	K_{11}/Repeat of base run	"	"	"	"	"	"	"
139	K_{11}+$VG_{2.1}$/Effect of vortex generators on aft crown	"	"	"	"	"	"	"
140	K_{11}+D_1/Flat-topped "doghouse" fairing on aft crown	"	"	"	"	"	"	"
141	K_{11}+D_2/Rounded-top fairing	"	"	"	"	"	"	"
142	K_{11}+FV_1/Deflection vane on crown between nacelles	"	"	"	"	"	"	"
143	K_{11}+X_1/Variable porosity spoiler	"	"	"	"	"	"	"
149	K_{13}+H_1-N_1/Effect of nacelles off also add stiff pitch arms (K_{13})	60	1075/0	4.5	"	"	"	"
150	K_{13}+H_1/60 knot baseline	"	"	"	"	"	"	"
151	K_{13}+$H_{1.3}$/16 inch diam. helmet fairing	"	"	"	"	"	"	"
152	K_{13}+$P_{1.0}$/Pylon and intake fairings	80	1433/0	8	"	"	"	"
153	K_{13}+$H_{1.2}$/Repeat 137 with K_{13} pitch arms	"	"	"	"	"	"	"

TABLE 2 (CONTINUED)
LIST OF TEST RUNS

EVALUATION OF WAKE-ALTERING DEVICES

RUN NO.	CONFIGURATION/CONDITION	V_{TUN} KNOTS	RPM MR/TR	DISK LDG. psf	MODEL ANGLES		MR HT.	TAIL ROTOR
					α°	ψ°	h/d	
154	$K_{13}+H_{1.5.2}$/10" open hub cap, 7" underbody, 1.25"gap	80	1433/0	8	6	-3.8	∞	Off
155	$K_{13}+H_{1.5.2}+S_4$/Same as 154 except strakes on aft crown	"	"	"	"	"	"	"
156	$K_{13}+H_{1.0}$/Baseline with K_{13},i.e., stiff pitch arms	"	"	"	"	"	"	"
158	$K_{13}-M+H_{1.0}$/Wake studies with blades off, hub not rotating	"	0/0	"	"	"	"	"
159	$K_{13}-M-H_{1.0}$/Wake studies with hub off	"	"	"	"	"	"	"
160	$K_{13}-M+H_{1.0}$/Same as 158 except hub is rotating	"	1433/0	"	"	"	"	"
161	$K_{13}-M+H_{1.5.2}$/Repeat of 154 without blades	"	0/0	"	"	"	"	"
162	$K_{13}-M+H_{1.5.3}$/Same as 161 except 4" gap	"	"	"	"	"	"	"
163	$K_{13}-M+H_{1.5.4}$/Same as 161 except 2" gap	"	"	"	"	"	"	"
164	$K_{13}-M+H_{1.5.1}$/Same as 161 except 0.5" gap	"	"	"	"	"	"	"
165	$K_{13}-M+H_{1.0.1}$/ 10" open hub cap,no underbody,same cap vert.position as Run 154	"	"	"	"	"	"	"
166	$K_{13}-M+H_{1.0.2}$/Same as 165 with cap lowered by 0.5"	"	"	"	"	"	"	"

TABLE 2 (CONTINUED)

LIST OF TEST RUNS

EVALUATION OF WAKE-ALTERING DEVICES

RUN NO.	CONFIGURATION/CONDITION	V_{TUN} KNOTS	RPM MR/TR	DISK LDG. psf	MODEL ANGLES		MR HT.	TAIL ROTOR
					α°	ψ°	h/d	
167	K_{13}-M+$H_{1.7.1}$/16" open cap, no underbody, 2" gap	80	0/0	8	6	-3.8	∞	Off
168	K_{13}+$H_{1.7.1}$/Blades on, same cap config. as 167	"	1433/0	"	"	"	"	"
169	K_{13}+$H_{1.7.2}$/16" open cap, no underbody, 4" gap	"	"	"	"	"	"	"
170	K_{13}+$H_{1.0}$+$D_{4.0}$/Extended flat top fairing on aft crown	"	"	"	"	"	"	"
171	K_{13}+$H_{1.7.2}$+$D_{4.0}$/Same fairing as 170, same cap as 169	"	"	"	"	"	"	"
172	K_{13}+$H_{1.0}$+$E_{1.0}$(0psi)/Basic air ejector zero blowing baseline	"	"	"	"	"	"	"
173	K_{13}+$H_{1.0}$+$E_{1.0}$(40 psi)/Same as 172 with 40 psi supply	"	"	"	"	"	"	"
174	K_{13}+$H_{1.0}$+$E_{1.0}$(150 psi)/Same as 172 with 150 psi supply	"	"	"	"	"	"	"
175	K_{13}+$H_{1.0}$+$E_{2.5.1}$(40 psi)/Ejector with wide chord shroud at 40 psi	"	"	"	"	"	"	"
176	K_{13}+$H_{1.0}$+$E_{2.5.1}$(150 psi)/Same as 174 with 150 psi supply	"	"	"	"	"	"	"
177	K_{13}+$H_{1.5.4}$+$E_{2.5.1}$(150 psi)/Same as 176 with 10" cap like 163	"	"	"	"	"	"	"
178	K_{13}+$H_{1.0}$+$W_{1.0}$+$E_{1.1}$(0 psi)/Nacelle mounted wing	"	"	"	"	"	"	"

TABLE 2 (CONTINUED)

LIST OF TEST RUNS

EVALUATION OF WAKE-ALTERING DEVICES

RUN NO.	CONFIGURATION/CONDITION	V_{TUN} KNOTS	RPM MR/TR	DISK LDG. psf	MODEL ANGLES		MR HT.	TAIL ROTOR
					α°	ψ°	h/d	
179	$K_{13}+H_{1.0}+W_{2.0}+E_{1.0}$ (0 psi)/Double slotted flapped wing	80	1433/0	8	6	-3.8	∞	Off
180	$K_{13}+H_{1.0}+W_{3.0}+E_{1.0}$ (0 psi)/Single slotted flapped wing	"	"	"	"	"	"	"
181	$K_{13}+H_{1.0}+E_{1.2}$ (0 psi)/Baseline with ejector tube moved aft	"	"	"	"	"	"	"
182	$K_{13}+H_{1.9.0}+E_{1.2}$ (0 psi)/Standard 10" frisbee	"	"	"	"	"	"	"
183	$K_{13}+H_{1.9.1}+E_{1.2}$ (0 psi)/16" fabricated frisbee	"	"	"	"	"	"	"
184	$K_{13}+H_{1.0}+E_{3.5.2}$ (40 psi)/Wide chord with lip at 40 psi	"	"	"	"	"	"	"
185	$K_{13}+H_{1.0}+E_{3.5.2}$ (150 psi)/Same as 184 with 150 psi air	"	"	"	"	"	"	"
186	$K_{13}+H_{1.0}+W_{4.0}$/Boom mounted stub wing	"	"	"	"	"	"	"
187	$K_{13}+H_{1.0}+E_{3.5.4}$ (150 psi)/Like 185 with modified shroud	"	"	"	"	"	"	"
188	$K_{13}+H_{1.0}+I_1+E_{1.0}$ (0 psi)/Baseline with I_1 instr. ring	"	"	"	"	"	"	"
189	$K_{13}+H_{1.8.1}+I_1+E_{1.0}$ (0 psi)/Solid cap, 10" diam. 3.25" height	"	"	"	"	"	"	"
190	$K_{13}+H_{1.8.2}+I_1+E_{1.0}$ (0 psi)/Same as 190 except + 4.12" height	"	"	"	"	"	"	"

TABLE 2 (CONTINUED)

LIST OF TEST RUNS

EVALUATION OF WAKE-ALTERING DEVICES

RUN NO.	CONFIGURATION/CONDITION	V_{TUN} KNOTS	RPM MR/TR	DISK LDG. psf	MODEL ANGLES		MR HT.	TAIL ROTOR
					$\alpha°$	$\psi°$	h/d	
191	$K_{13}+H_{1.0.2}+I_1+E_{1.0}$ (0 psi)/10" cap, no underbody, 1.87" gap	80	1433/0	8	6	-3.8	∞	Off
193	$K_{13}+H_{1.0.2}+I_1+E_{1.0}$ (0 psi)/10" cap, no underbody, 1.25" gap	"	"	"	"	"	"	"
194	$K_{13}+H_{1.11.1}+I_2+E_{1.0}$(0 psi)/7.6" cap, underbody, 1.25" gap	"	"	"	"	"	"	"
195	$K_{13}+H_{1.11.1}+I_2+E_{1.0}$(20 psi)/Same as 194 with 20 psi air	"	"	"	"	"	"	"
196	$K_{13}+H_{1.11.1}+I_2+E_{1.0}$(40 psi)/Same as 194 with 40 psi air	"	"	"	"	"	"	"
197	$K_{13}+H_{1.11.1}+I_2+E_{1.0}$(150 psi)/Same as 194 with 150 psi air	"	"	"	"	"	"	"
198	$K_{13}+H_{1.11.1}+I_2+E_{4.0}$ (0 psi)/Same as 194 except blowing tube 2" aft	"	"	"	"	"	"	"
199	$K_{13}+H_{1.11.1}+I_2+E_{4.0}$ (40 psi)/Same as 198 with 40 psi air	"	"	"	"	"	"	"
200	$K_{13}+H_{1.11.1}+I_2+E_{4.0}$ (150 psi)/Same as 198 with 150 psi air	"	"	"	"	"	"	"
201	$K_{13}+H_{1.11.2}+I_2+E_{4.0}$ (150 psi)/Same as 200 except center support cap	"	"	"	"	"	"	"
202	$K_{13}+H_{1.11.2}+I_2$/Baseline with I_2 and no blowing tube	"	"	"	"	"	"	"
203	$K_{13}+H_{1.0}+E_{5.0}$(0 psi)/Bifurcated air duct baseline	"	"	"	"	"	"	"

TABLE 2 (CONTINUED)

LIST OF TEST RUNS

EVALUATION OF WAKE-ALTERING DEVICES

RUN NO.	CONFIGURATION/CONDITION	V_{TUN} KNOTS	RPM MR/TR	DISK LDG. psf	MODEL ANGLES		MR HT.	TAIL ROTOR
					α°	ψ°	h/d	
204	$K_{13}+H_{1.0}+E_{5.0}$ (150 psi)/Bifurcated duct with 150 psi air	80	1433/0	8	6	-3.8	∞	Off
205	$K_{13}+H_{1.0}+E_{5.0}$ (40 psi)/Same as 204 with 40 psi air	"	"	"	"	"	"	"
207	$K_{13}+H_{1.2.1}+I_1+E_{1.0}$ (0 psi)/7.6" solid cap, no gap	"	"	"	"	"	"	"
208	$K_{13}+H_{1.2.2}+I_1+E_{1.0}$ (0 psi)/Same as 207 except 0.55" gap	"	"	"	"	"	"	"
210	$K_{13}+H_{1.15.1}+I_1+E_{1.0}$ (0 psi)/Repeat of 189	"	"	"	"	"	"	"
211	$K_{13}+H_{1.14.1}+I_1+E_{1.0}$ (0 psi)/Like 189 and 210 except cap is open	"	"	"	"	"	"	"

TABLE 3

INDEX TO RAKE POSITIONS

RUN NUMBER	TEST POINT	WATER LINE	MODEL STATION	BUTT LINE	LOCATION FIGURE
111	20	53.5	103.1	-7.25	1
	21	"	"	"	
	22	"	105.0	"	
	24	"	107.0	"	
	26	"	109.0	"	
	28	"	111.0	"	
	30	"	112.9	"	
	32	"	114.9	"	
	34	"	116.9	"	
	36	"	118.9	"	
112	2	48.9	107.3	-7.25	1
	4	50.8	"	"	
	6	52.7	103.3	"	
	8	54.5	"	"	
	10	56.2	"	"	
	12	57.2	"	"	
113	2	51.7	103.3	-3.25	1
	4	52.3	"	"	
	6	52.8	"	"	
	8	53.3	"	"	
	10	53.9	"	"	
	11	53.3	"	"	
114	2	44.5	103.0	-3.25	1
	4	46.4	"	"	
	6	48.2	"	"	
	8	50.0	"	"	
	10	51.9	"	"	
115	3	52.9	124.7	-3.25	1
	4	52.0	"	"	
	6	50.0	"	"	
	9	48.0	"	"	
	10	46.0	"	"	
	12	44.1	"	"	
	14	42.1	"	"	
	16	53.0	"	"	
	18	54.0	"	"	
	20	55.0	"	"	

TABLE 3 (CONTINUED)

INDEX TO RAKE POSITIONS

RUN NUMBER	TEST POINT	WATER LINE	MODEL STATION	BUTT LINE	LOCATION FIGURE
116	7	36.9	100.5	-17.5	1
117	2	37.6	100.5	-16.0	1
	4	"	"	-14.0	
	6	37.3	99.6	-12.0	
	8	"	"	-10.0	
	10	"	"	- 8.0	
118	2	37.6	100.5	- 6.0	1
119	2	37.3	99.6	+ 6.0	1
	5	"	"	8	
	8	"	"	10	
	9	"	"	"	
	14	"	"	14	
	16	"	"	16	
	20	51.5	102.5	17.5	
	25	52.3	101.7	-17.5	
121	3	62.9	129.0	+ 5.7	2
	4	53.5	"	"	
	6	50.1	"	"	
	8	46.0	"	"	
	10	42.1	"	"	
135	2	56.9	106.3	- 5.7	3
	4	54.5	"	"	
	6	52.5	"	"	
	8	50.5	"	"	
	10	48.5	"	"	
	12	46.5	"	"	
	14	44.5	"	"	
136	2	56.5	104.0	- 8.0	4
	4	54.5	"	"	
	6	52.5	"	"	
	8	50.6	"	"	
	10	48.5	"	"	
	12	46.5	"	"	
	14	44.5	"	"	
	17	37.1	"	"	
	18	39.0	"	"	
	19	41.0	"	"	

TABLE 3 (CONTINUED)

INDEX TO RAKE POSITIONS

RUN NUMBER	TEST POINT	WATER LINE	MODEL STATION	BUTT LINE	LOCATION FIGURE
137	3	38.7	98.4	- 8.0	5
	5	39.9	"	"	
	7	42.0	100.5	"	
	9	44.0	"	"	
	11	46.0	103.6	"	
	13	48.0	"	"	
	15	50.0	"	"	
	17	52.0	"	"	
	19	54.0	"	"	
138-41, 143	2	38.8	98.4	- 8.0	5
	3	40.0	"	"	
	4	42.0	100.5	"	
	5	44.0	"	"	
	6	46.0	103.6	"	
	7	48.0	"	"	
	8	50.0	"	"	
	9	52.0	"	"	
	10	54.0	"	"	
142	7	37.8	98.4	- 8.0	5
	8	"	"	"	
	9	40.2	"	"	
	10	42.0	100.5	"	
	11	44.0	"	"	
	12	46.0	103.6	"	
	13	48.0	"	"	
	14	50.0	"	"	
	15	52.0	"	"	
	16	54.0	"	"	
	17	56.8	"	"	

TABLE 3 (CONTINUED)

INDEX TO RAKE POSITIONS

RUN NUMBER	TEST POINT	WATER LINE	MODEL STATION	BUTT LINE	LOCATION FIGURE
149-151	2	38.8	98.5	- 8.0	5
	3	40.0	"	"	
	4	42.0	100.6	"	
	5	44.0	"	"	
	6	46.0	103.5	"	
	7	48.0	"	"	
	8	50.0	"	"	
	9	52.0	"	"	
	10	54.0	"	"	
152-6, 158 161-4, 166 167, 169-71 175, 177-9 180,182,184 186-8, 190 191,193,194 196,198,201 204,207,208 211	2	42.9	97.9	0.0	6
	3	44.9	"	"	
	4	46.9	100.6	"	
	5	48.9	"	"	
	6	50.9	104.6	"	
	7	52.9	"	"	
	8	54.9	"	"	
	9	56.9	"	"	
159	1	54.9	104.6	0.0	6
	2	52.9	"	"	
	3	50.7	"	"	
	4	48.6	100.6	"	
	5	46.7	"	"	
160,203	5	42.9	97.9	0.0	6
	6	44.9	"	"	
	7	46.9	100.6	"	
	8	48.9	"	"	
	9	50.9	104.6	"	
	10	52.9	"	"	
	11	54.9	"	"	
165	3	44.9	97.9	0.0	6
	4	42.9	"	"	
	5	46.9	100.6	"	
	6	48.9	"	"	
	7	50.9	104.6	"	
	8	52.9	"	"	

TABLE 3 (CONTINUED)

INDEX TO RAKE POSITIONS

RUN NUMBER	TEST POINT	WATER LINE	MODEL STATION	BUTT LINE	LOCATION FIGURE
168, 183	4	42.9	97.9	0.0	6
	5	44.9	"	"	
	6	46.9	100.6	"	
	7	48.9	"	"	
	8	50.9	104.6	"	
	9	52.9	"	"	
	10	54.9	"	"	
172	3	42.9	97.9	0.0	6
	4	44.9	"	"	
	6	44.9	"	"	
	7	46.9	100.6	"	
	8	48.9	"	"	
	9	50.9	104.6	"	
	10	52.9	"	"	
	11	54.9	"	"	
173,174,176 185,195,197 199,200,205 210	1	42.9	97.9	0.0	6
	2	44.9	"	"	
	3	46.9	100.6	"	
	4	48.9	"	"	
	5	50.9	104.6	"	
	6	52.9	"	"	
	7	54.9	"	"	
181	2	42.9	97.9	0.0	6
	3	44.9	"	"	
	4	46.9	100.6	"	
	5	48.9	"	"	
	6	50.9	104.6	"	
	7	52.9	"	"	
	9	54.9	"	"	
	10	"	"	"	
	11	"	"	"	
	12	"	"	"	
	13	42.9	97.9	"	

TABLE 3 (CONTINUED)

INDEX TO RAKE POSITIONS

RUN NUMBER	TEST POINT	WATER LINE	MODEL STATION	BUTT LINE	LOCATION FIGURE
189	29	42.9	97.9	0.0	6
	30	44.9	"	"	
	31	46.9	100.6	"	
	32	48.9	"	"	
	33	"	"	"	
	34	50.9	104.6	"	
	35	"	"	"	
	36	48.9	100.6	"	
	37	50.9	104.6	"	
	38	52.9	"	"	
	39	54.9	"	"	
202	3	43.4	97.9	0.0	6
	4	44.9	"	"	
	5	46.9	100.6	"	
	6	48.9	"	"	
	7	50.9	104.6	"	

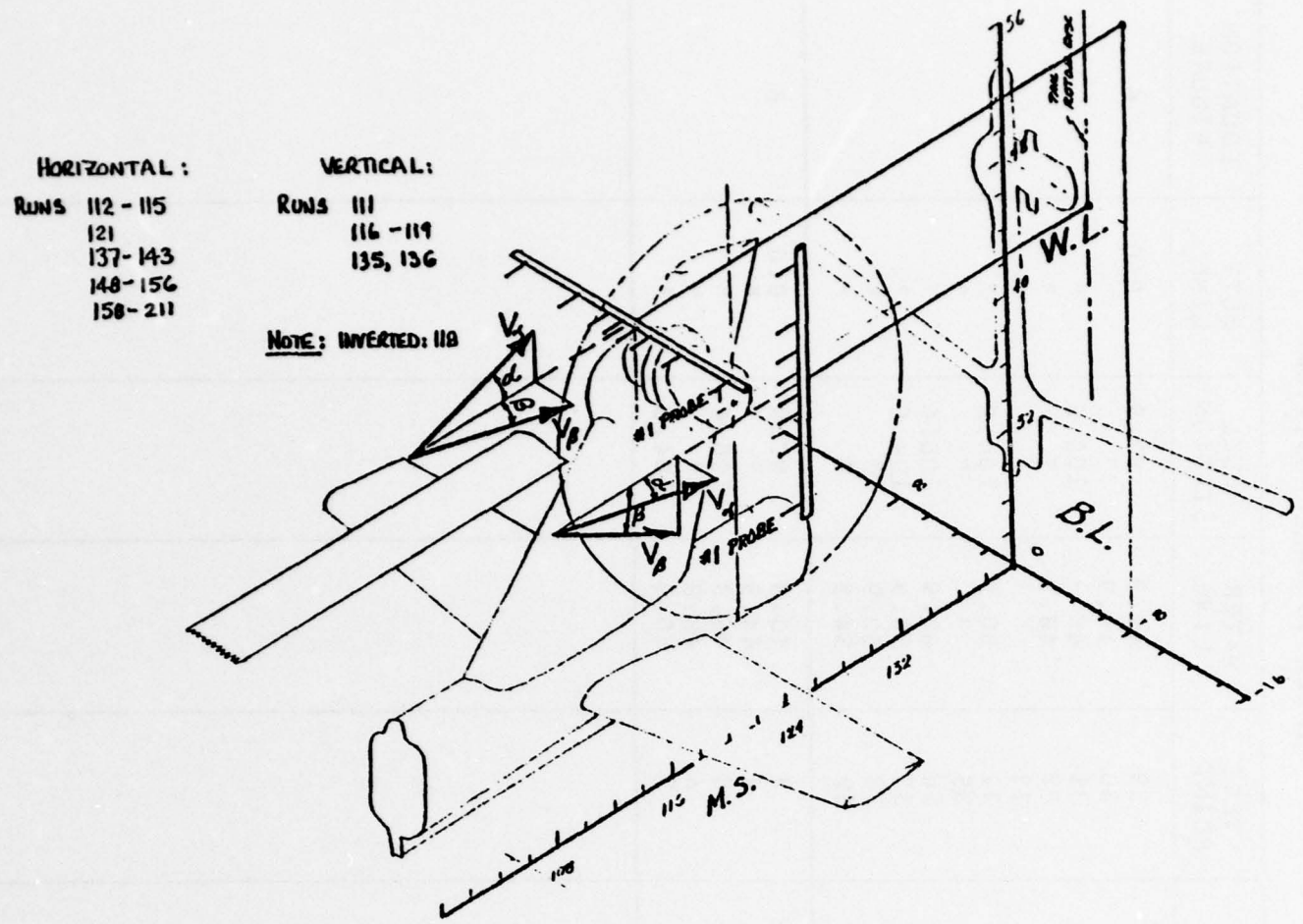


FIGURE 1 - RAKE ORIENTATION DIAGRAM

RUN 121

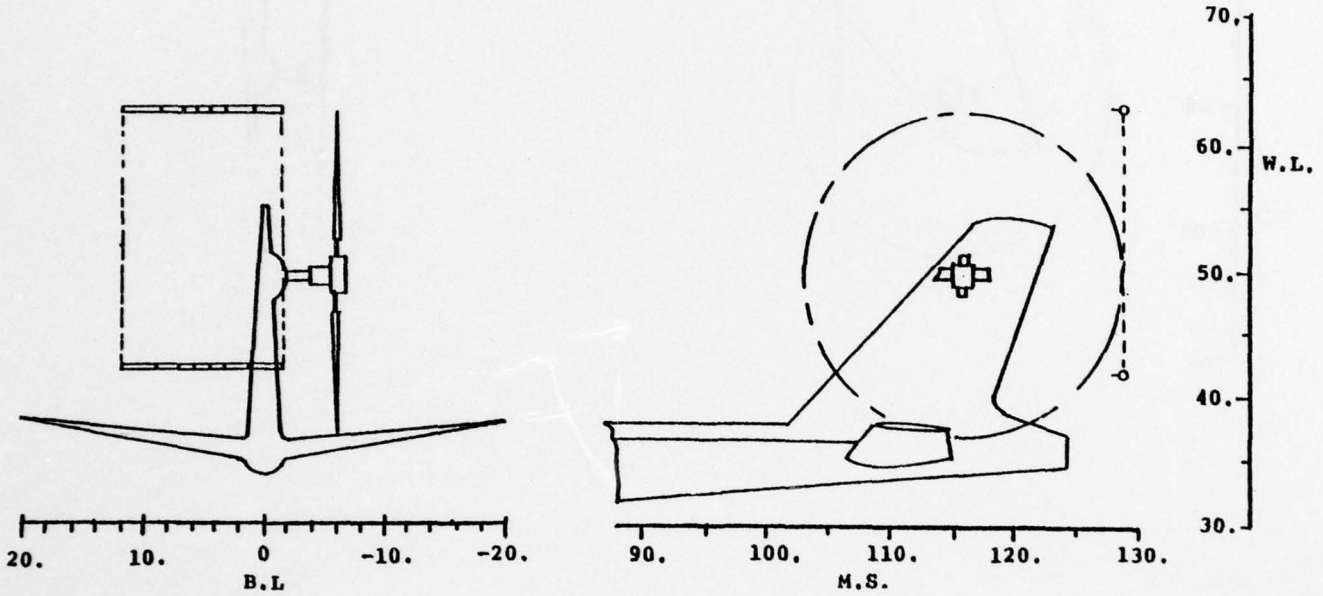


FIGURE 2 -HOT FILM RAKE LOCATIONS

RUN 135

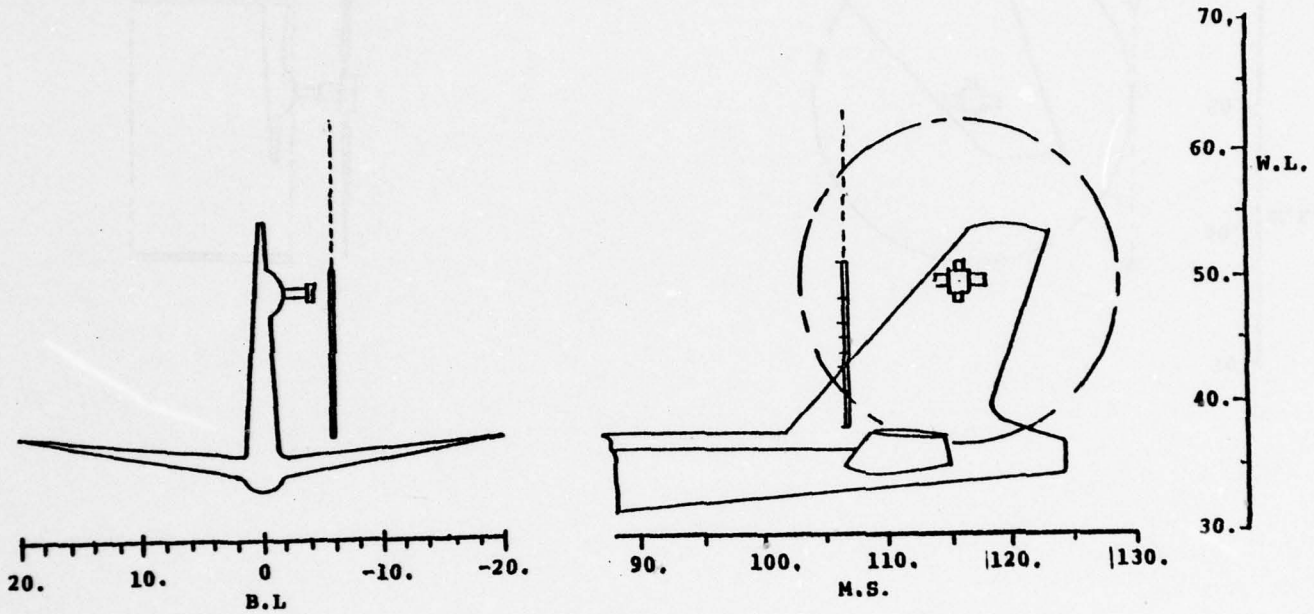


FIGURE 3 -HOT FILM RAKE LOCATIONS

RUN 136

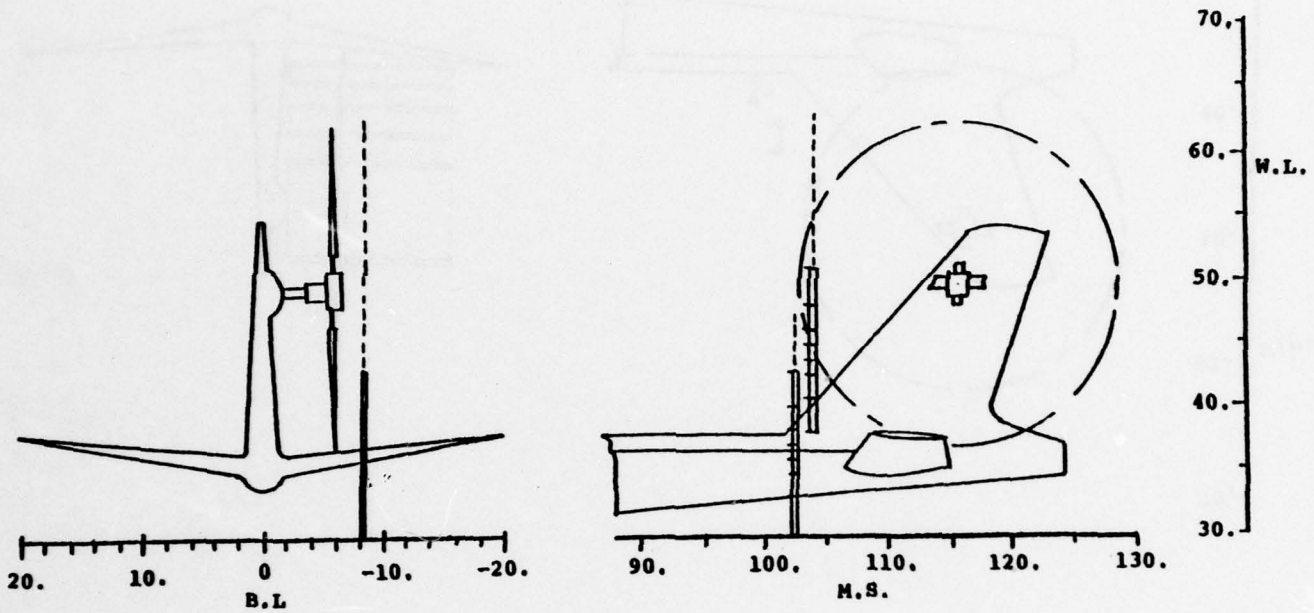


FIGURE 4 -HOT FILM RAKE LOCATIONS

RUN 137, 138, 139, 140, 141, 142,
143, 148, 149, 150, 151

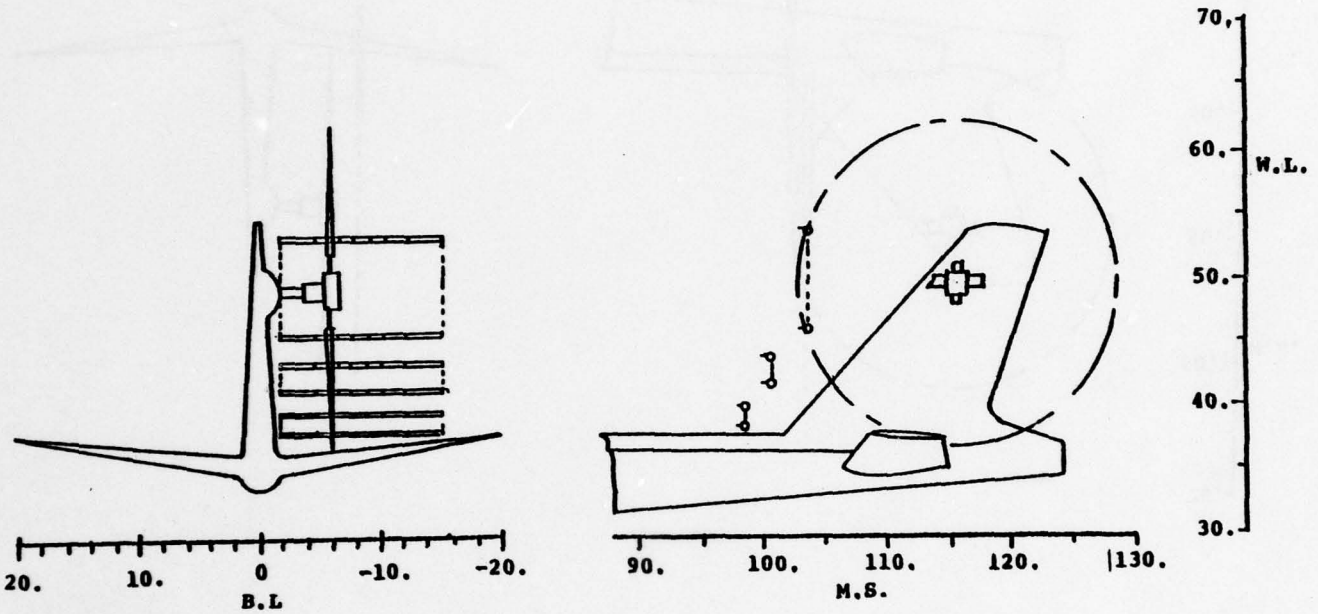


FIGURE 5 -HOT FILM RAKE LOCATIONS

RUN 152-156, 158-211

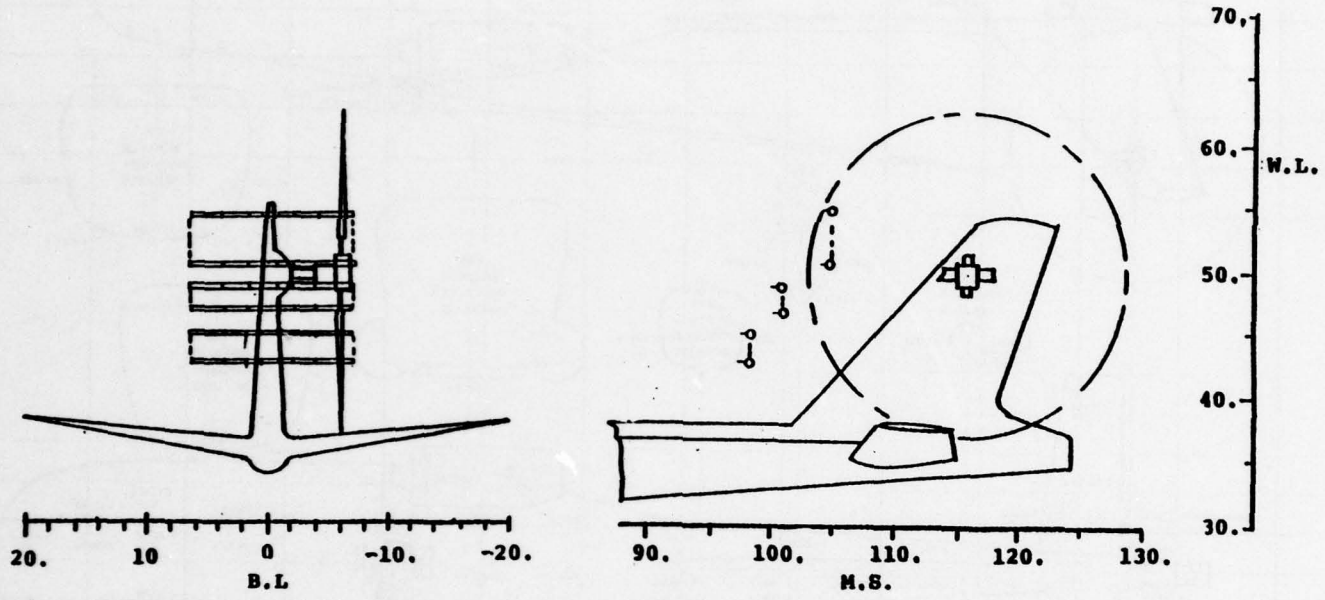


FIGURE 6 -HOT FILM RAKE LOCATIONS

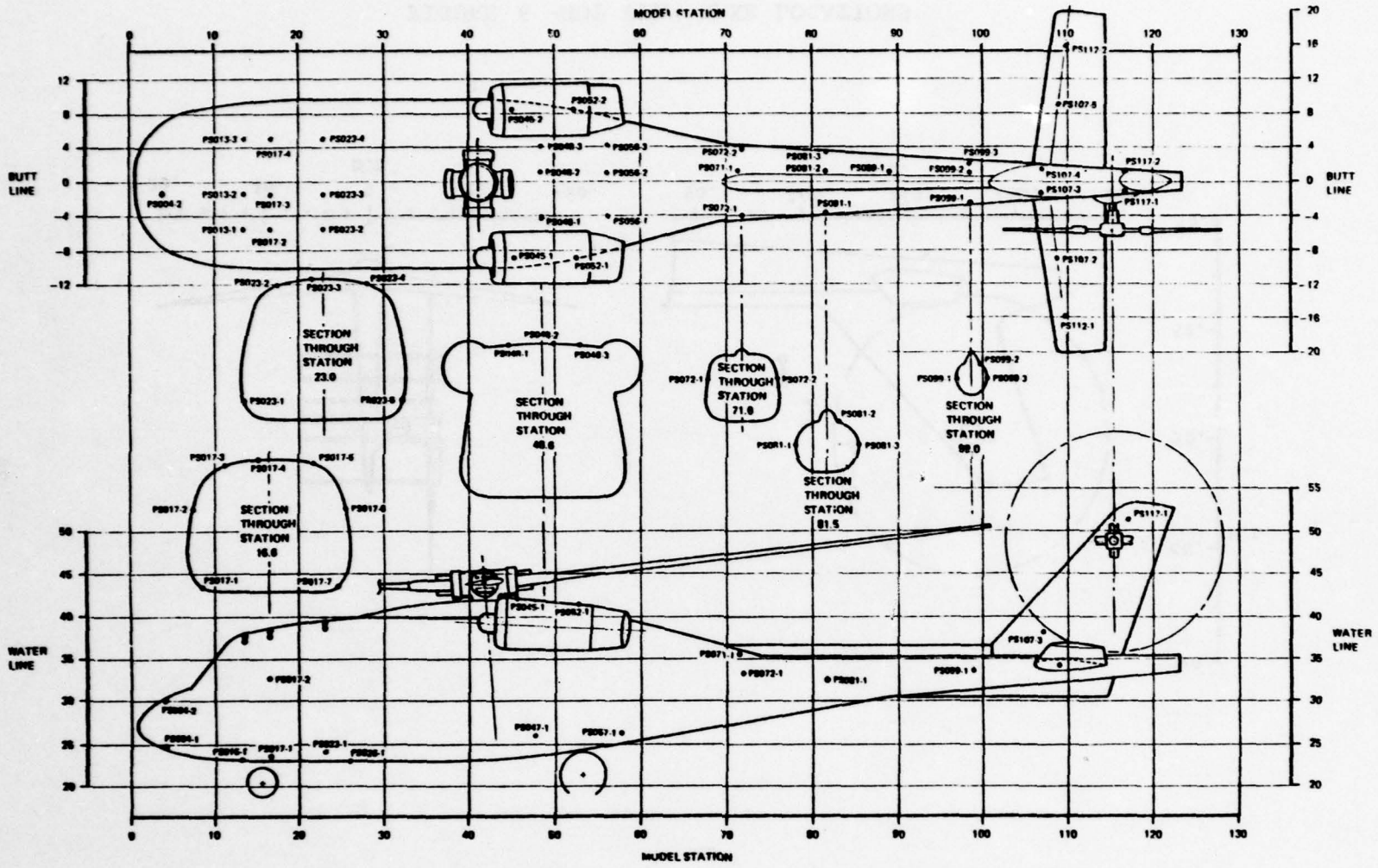
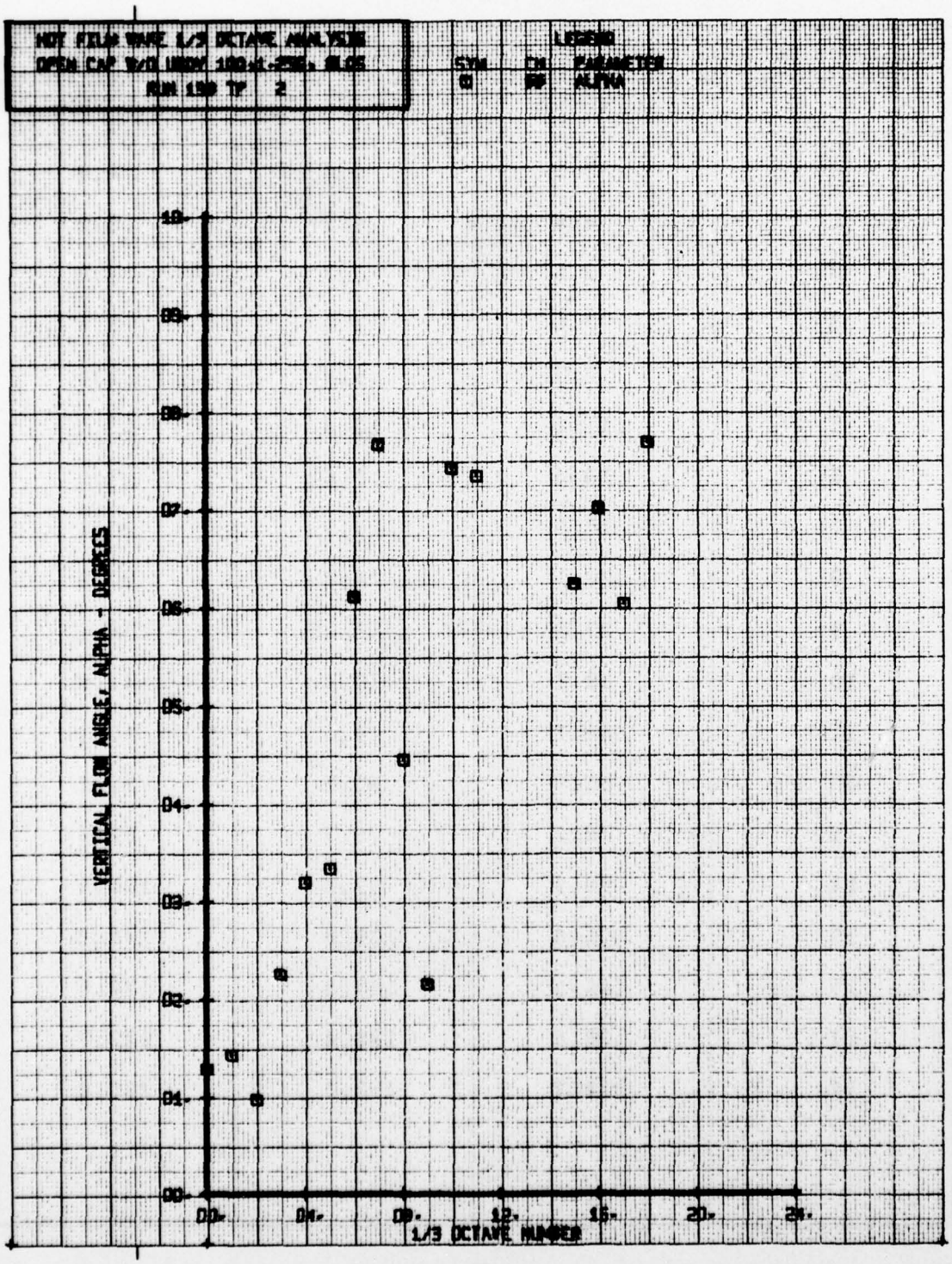
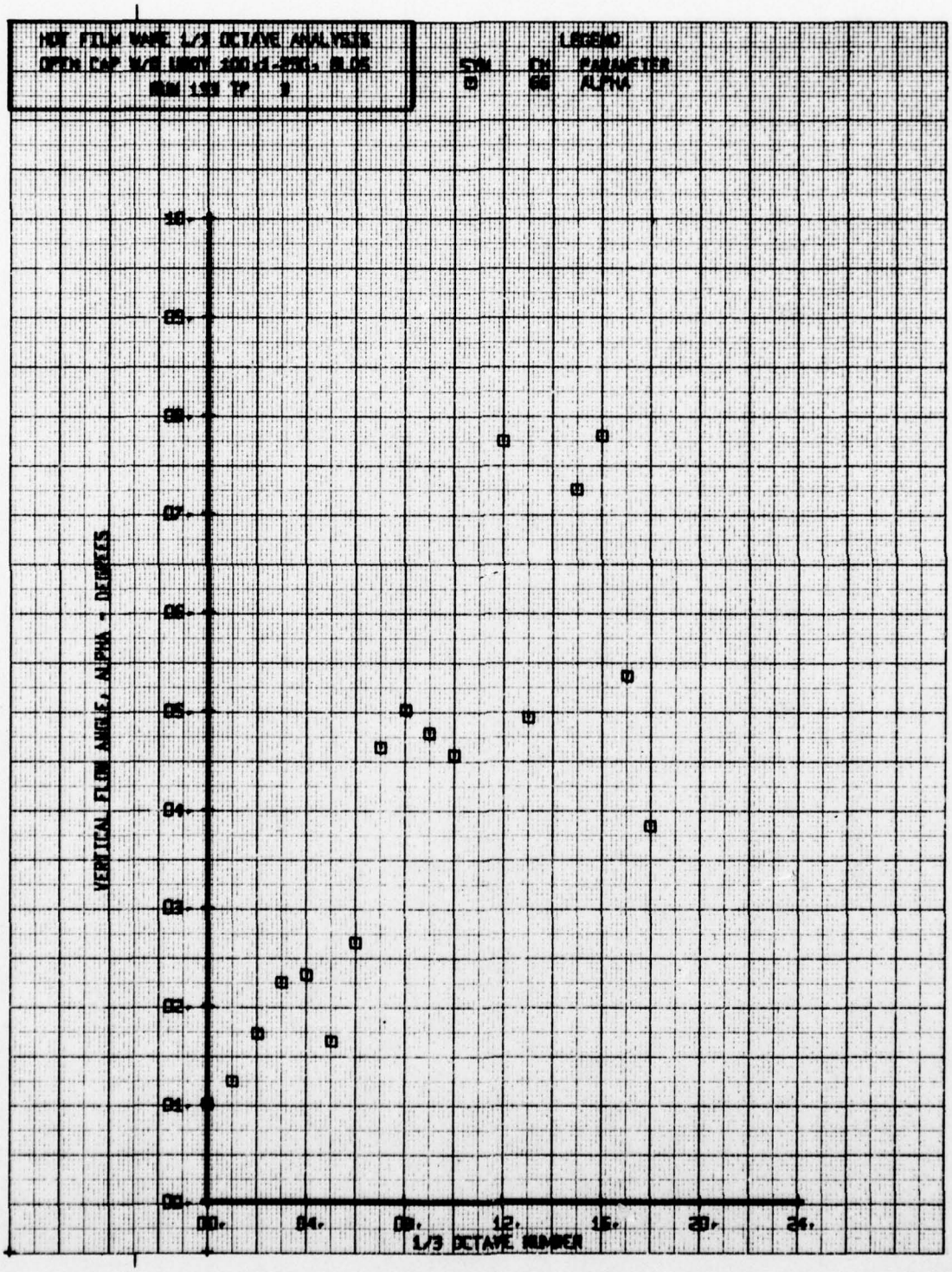


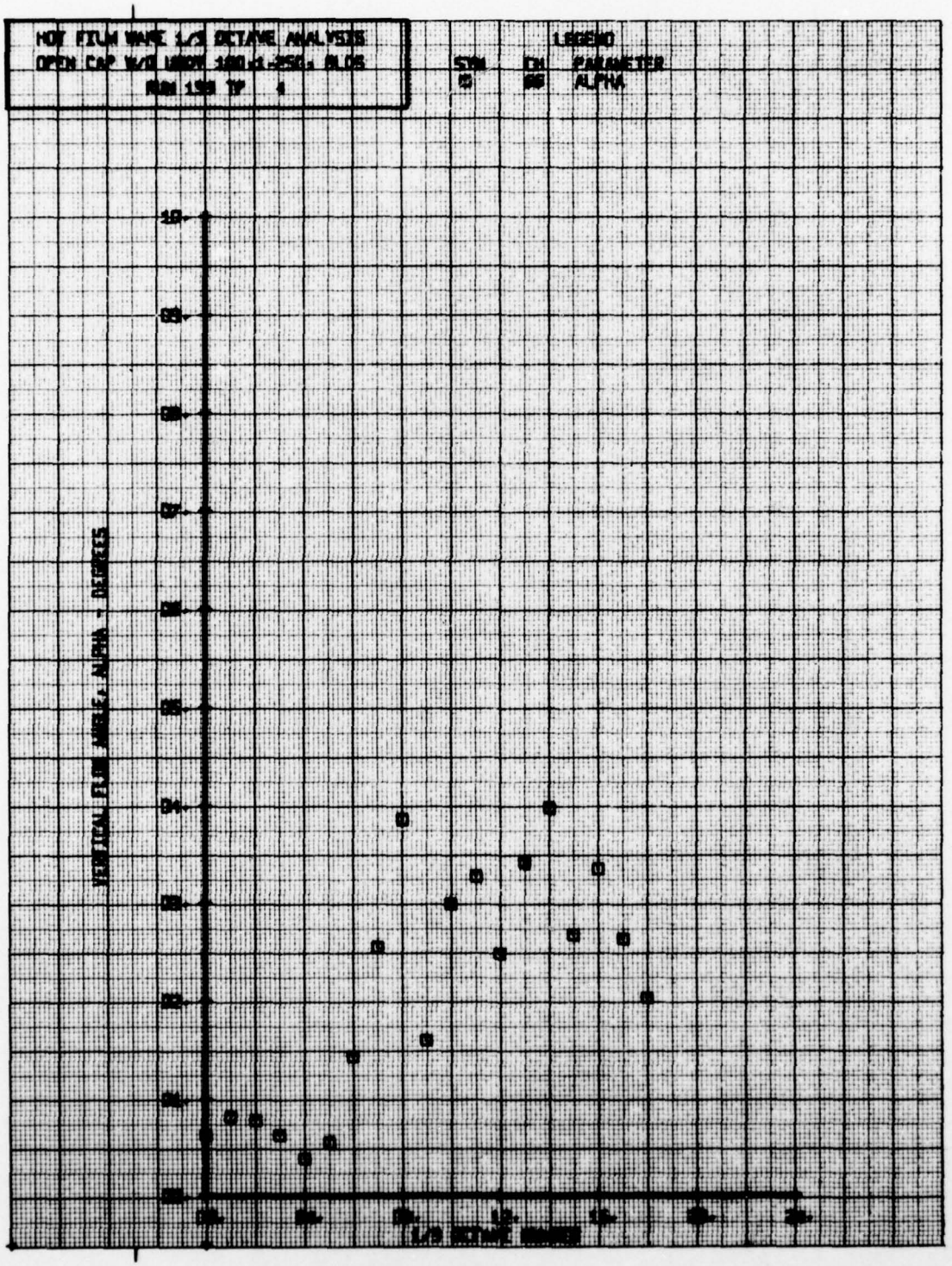
FIGURE 7 -1/4.85 SCALE MODEL GEOMETRY AND SURFACE PRESSURE TRANSDUCER LOCATIONS

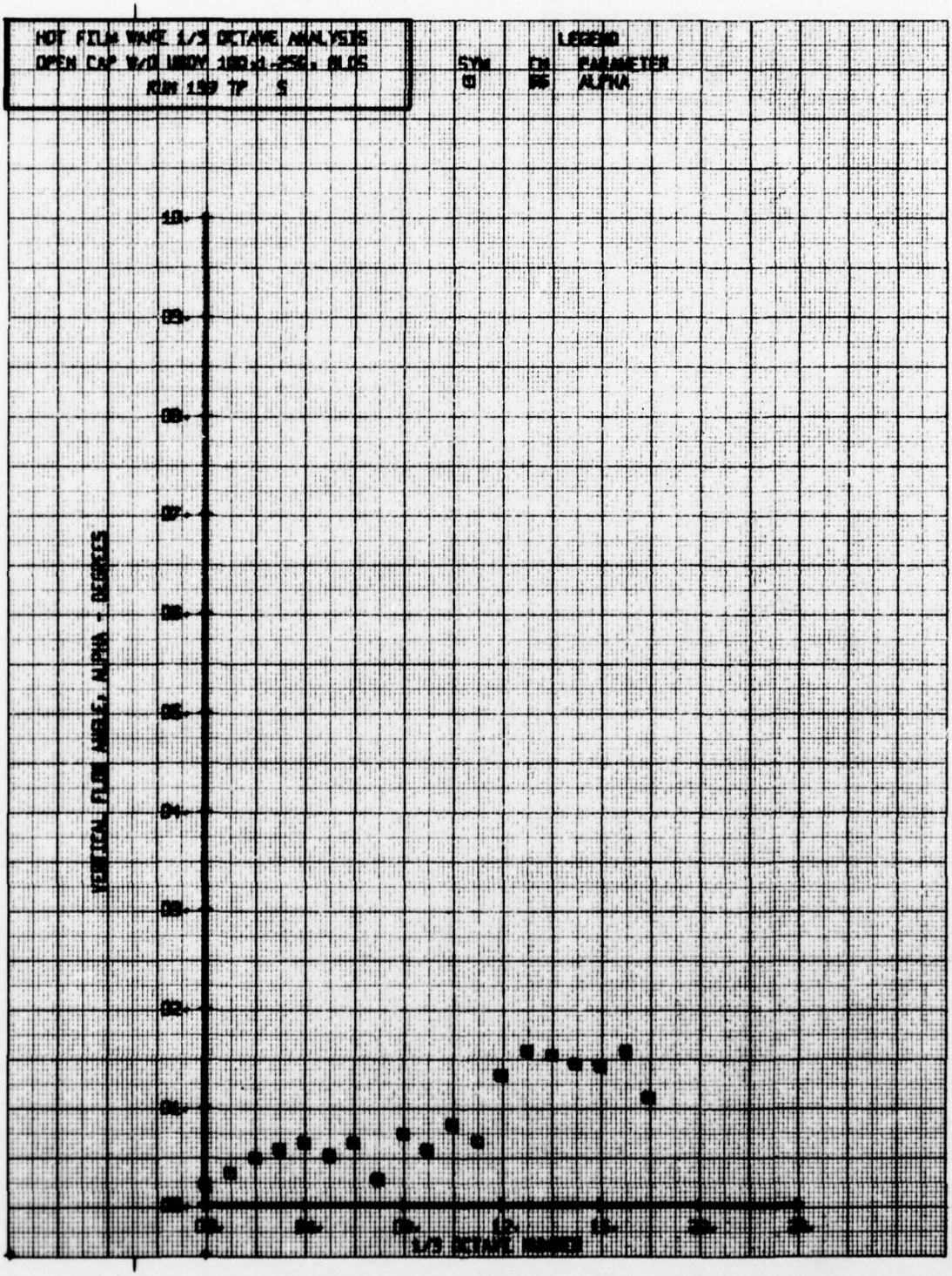
TABLE 4
1/3 OCTAVE BAND IDENTIFICATION

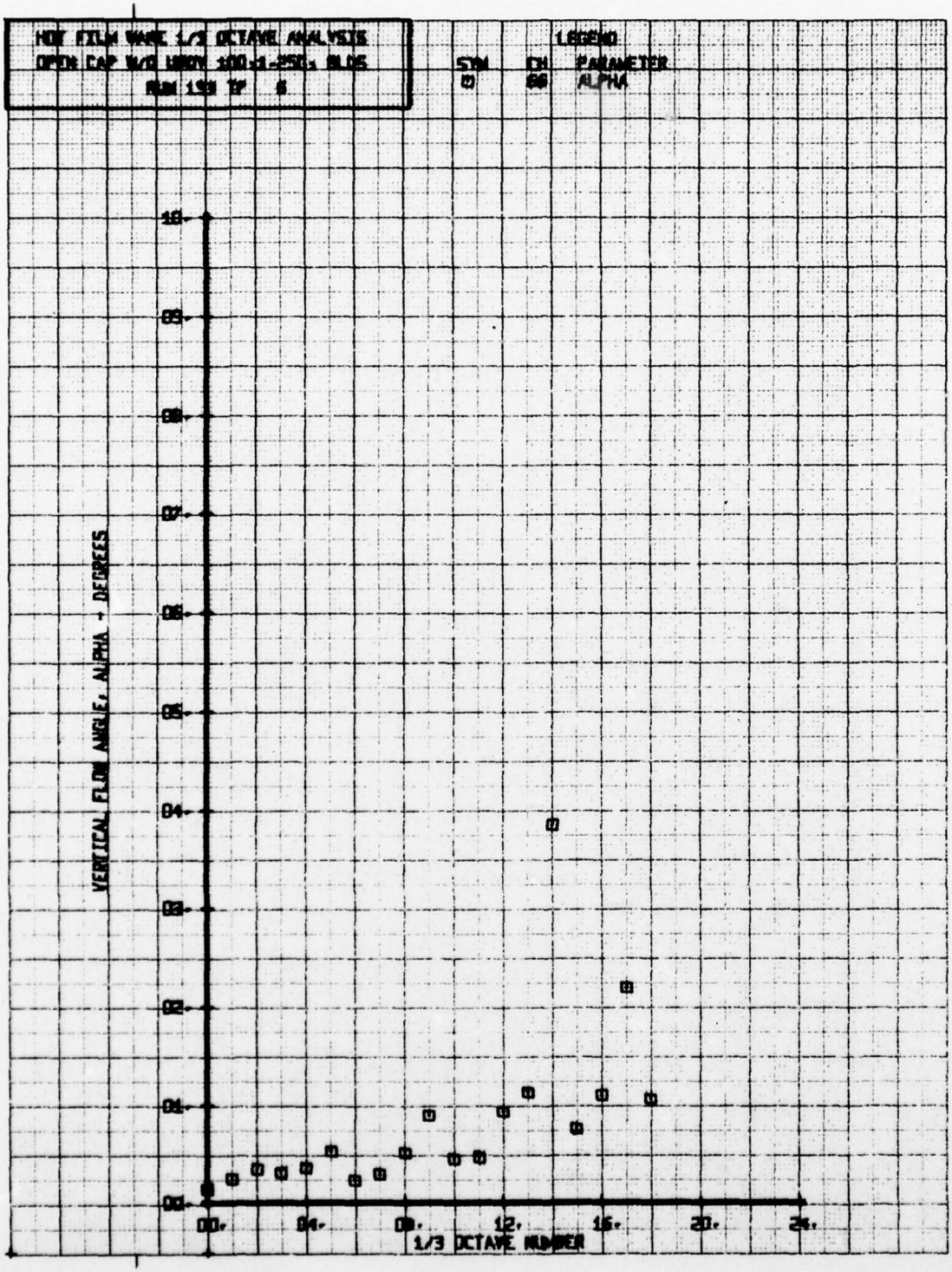
BAND NUMBER	BAND WIDTH - Hz		
	MINIMUM	CENTER	MAXIMUM
0	3.5	3.4	4.4
1	4.4	4.9	5.5
2	5.5	6.2	7.0
3	7.0	7.8	8.7
4	8.7	9.8	11.0
5	11.0	12.4	13.9
6	13.4	15.6	17.5
7	17.5	19.7	22.1
8	22.1	24.8	27.8
9	27.8	31.25	35.1
10	35.1	39.4	44.2
11	44.2	49.6	55.7
12	55.7	62.5	70.2
13	70.2	78.7	88.9
14	88.9	99.2	111.4
15	111.4	125.0	140.3
16	140.3	157.5	176.8
17	176.8	198.4	222.7
18	222.7	250.0	280.6

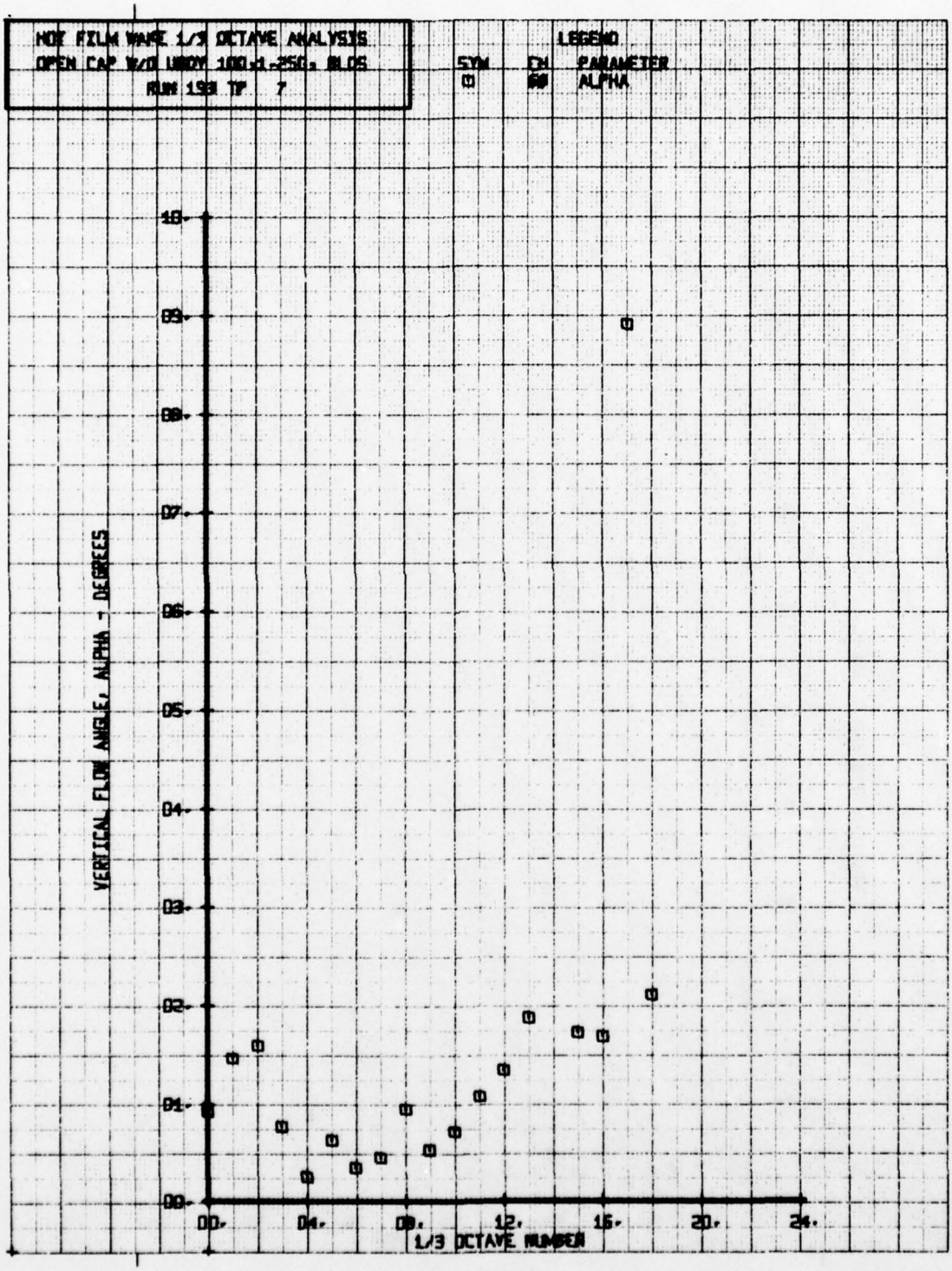

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP 9/10 UNDOV 100x1.25in SLOT
RUN 150 TP 2
LEGEND
SYM CH PARAMETER
8 RF ALPHA
10
08
06
04
02
00
VERTICAL FLOW ANGLE, ALPHA - DEGREES
00
04
08
12
16
20
24
1/3 OCTAVE NUMBER

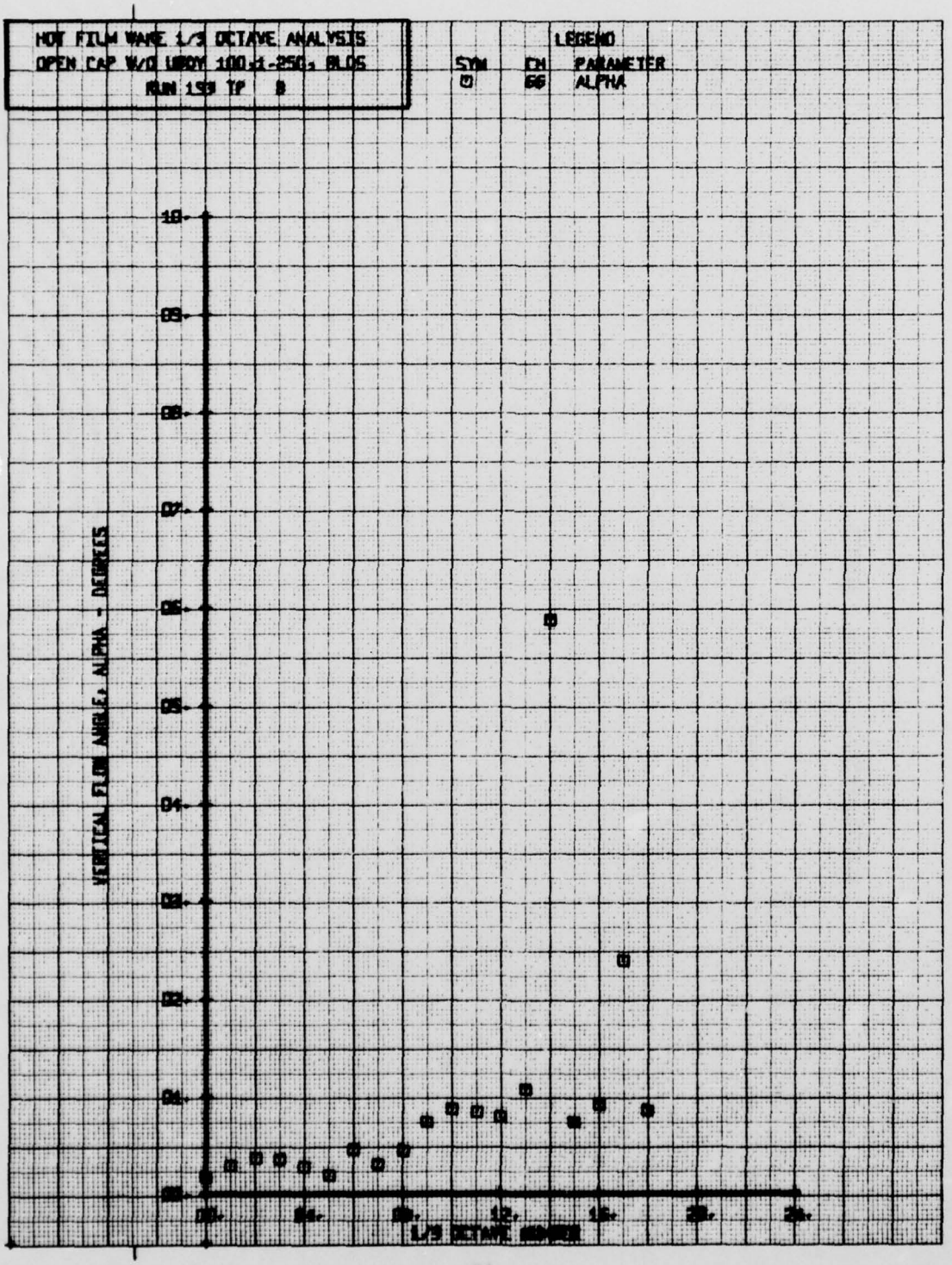

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/8 HOST 300 kl-250, BLDS
RUN 139 TP 9
LEGEND
SYM CH PARAMETER
ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER
00.
04.
08.
12.
16.
20.
24.

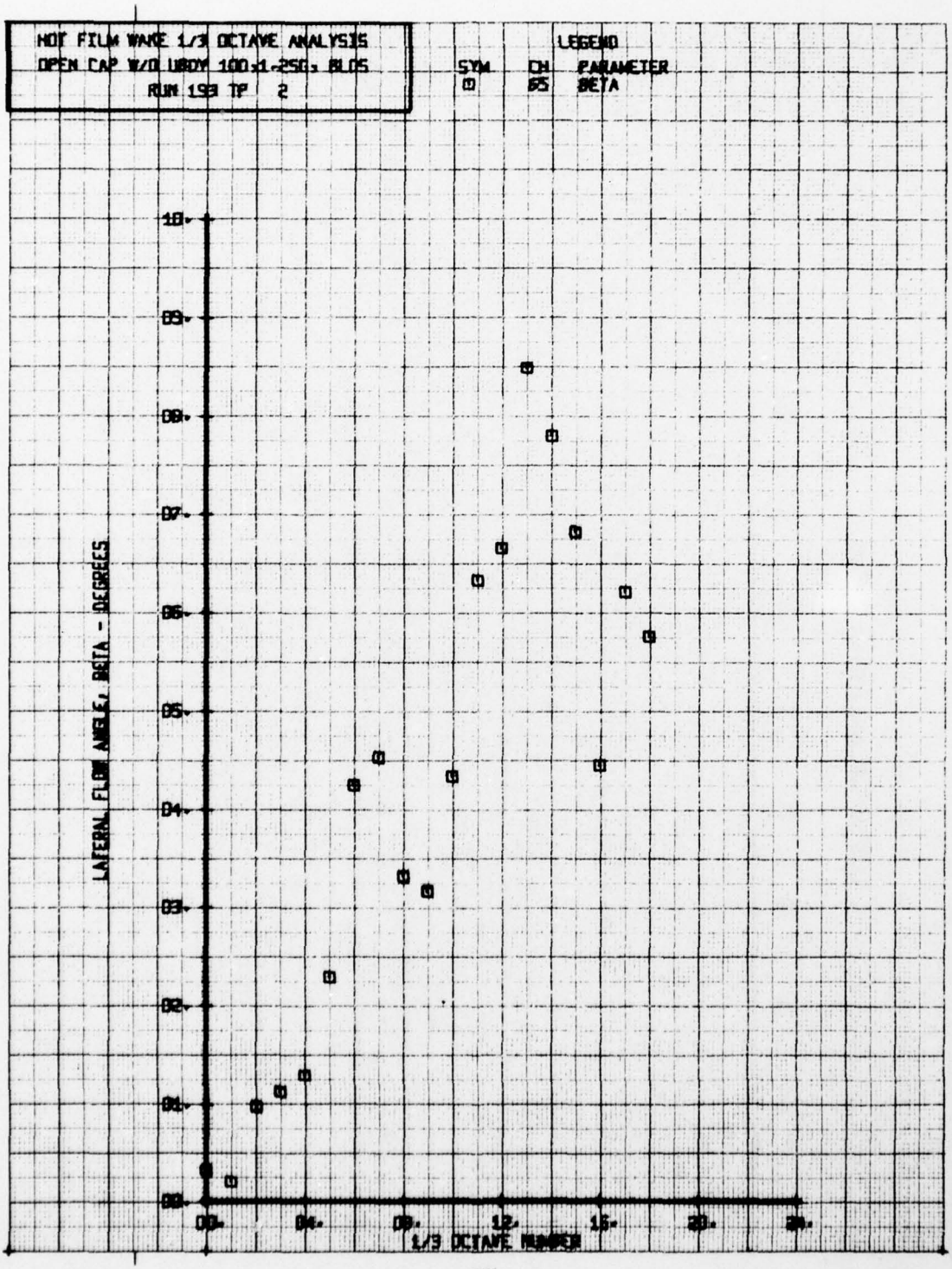

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O ARROW 100x1-250x BLDS
RUN 158 TP 4
LEGEND
STAT
ID
ON
SS
PARAMETER
ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES

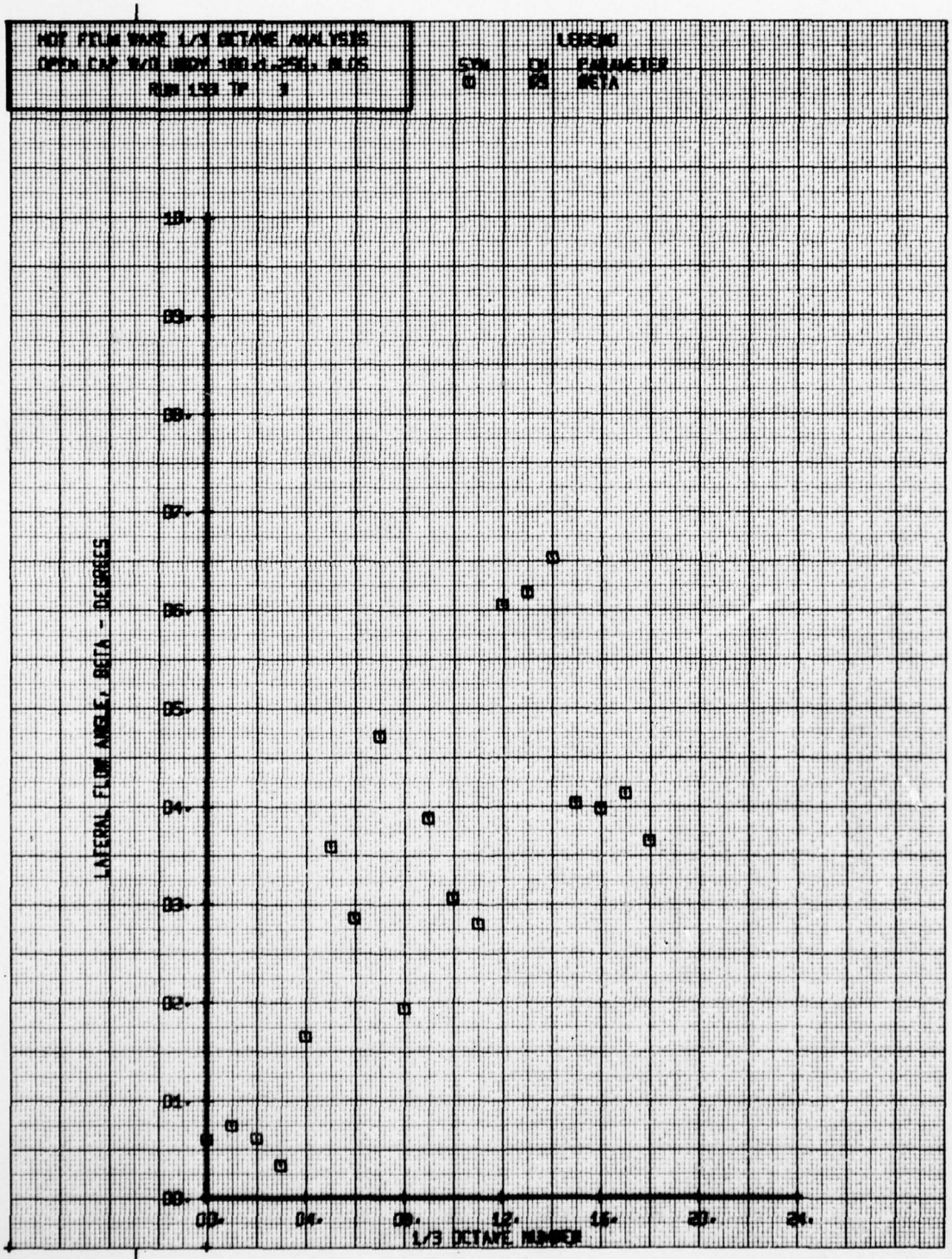

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UROV 100+1.25G, ALOS
RUN 159 TP 5
LEGEND
SYM PM PARAMETER
ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE BANDS

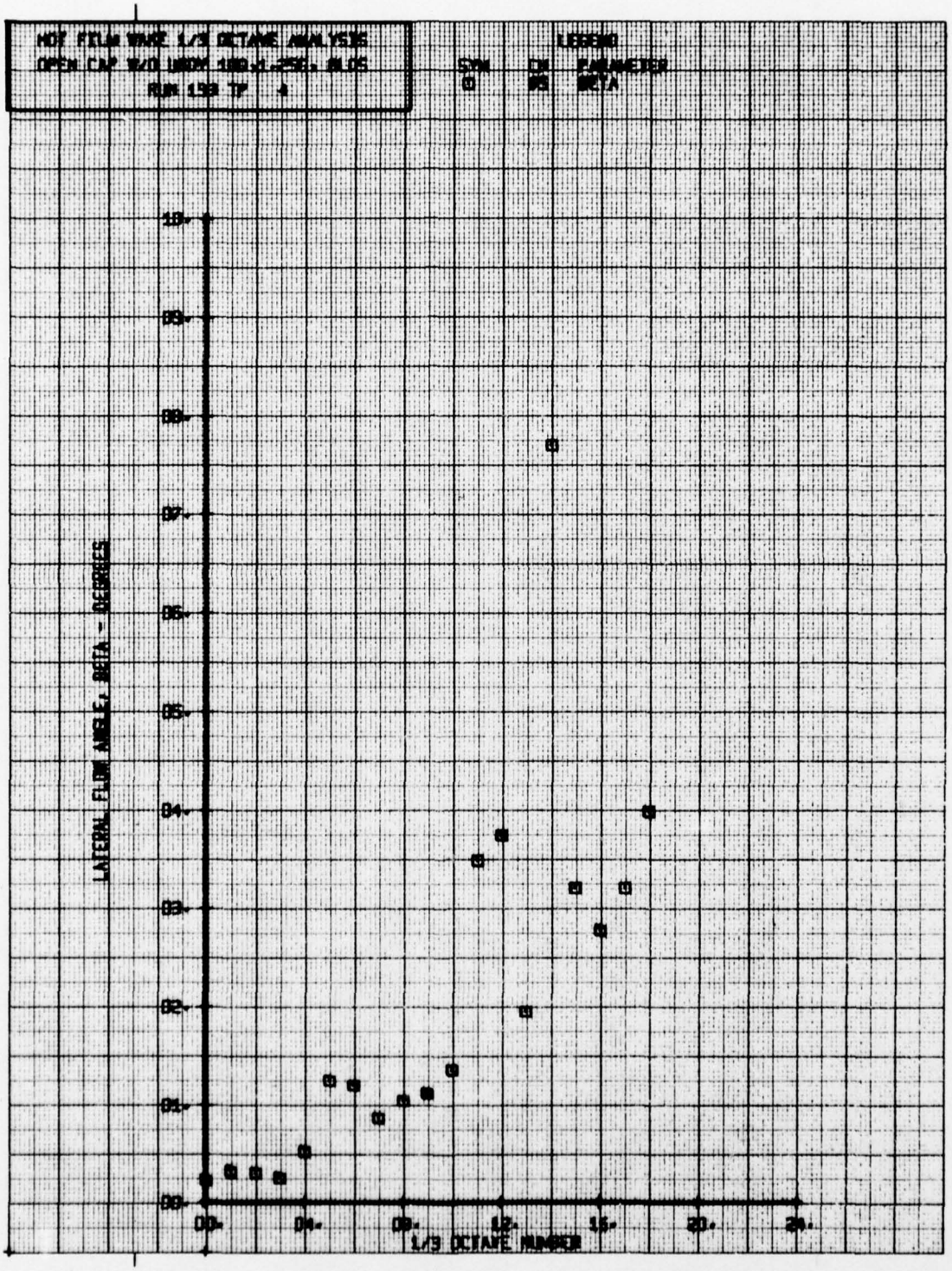

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O HUB, 100 x 1-250 x BLDS
RUN 193 TP 6
LEGEND
SYM CH PARAMETER
ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

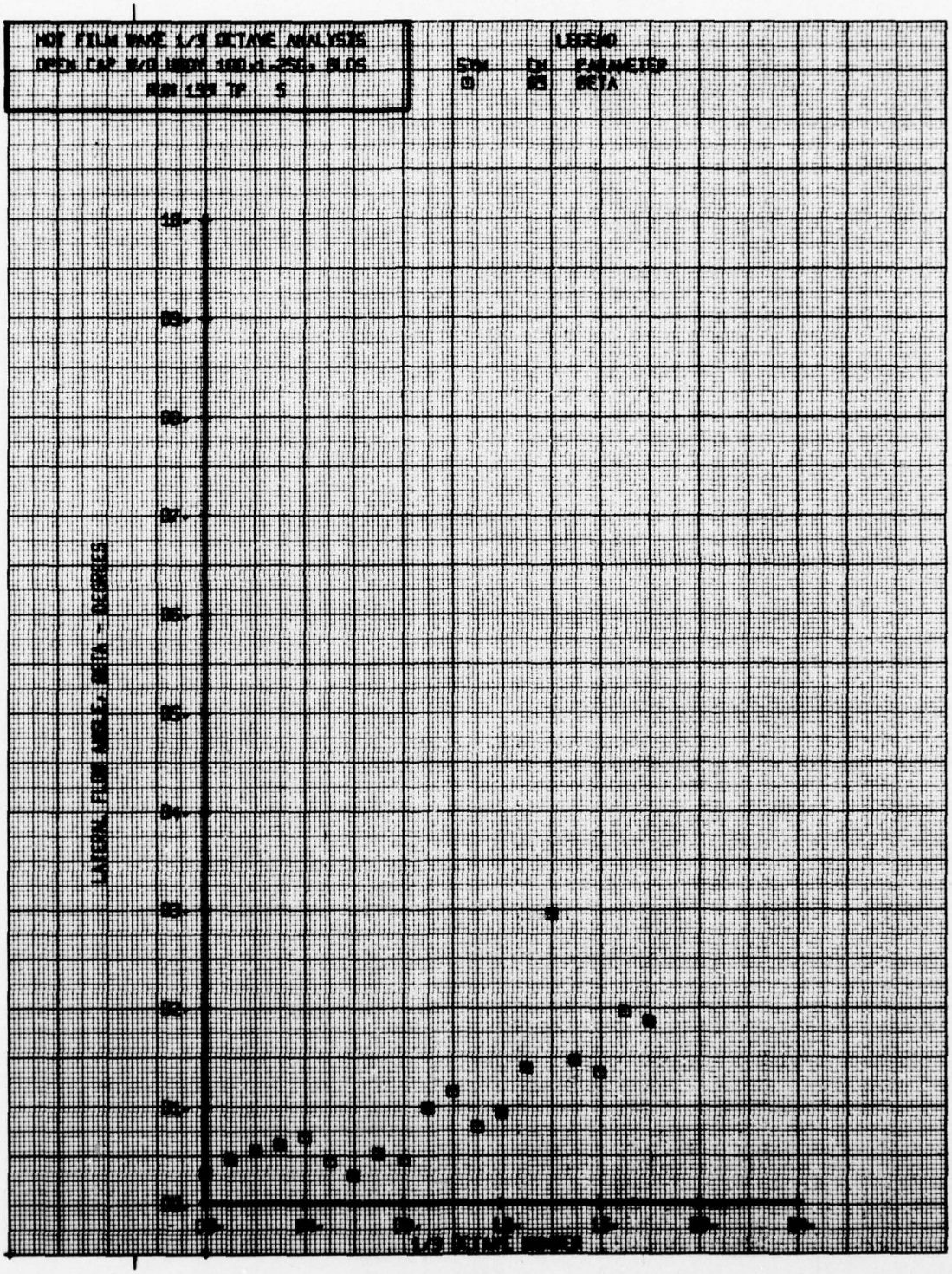

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBODY 100x1.25G, BLDS
RUN 193 TP 7
LEGEND
SYM CH PARAMETER
ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER
10.
09.
08.
07.
06.
05.
04.
03.
02.
01.
00.
00.
04.
08.
12.
16.
20.
24.

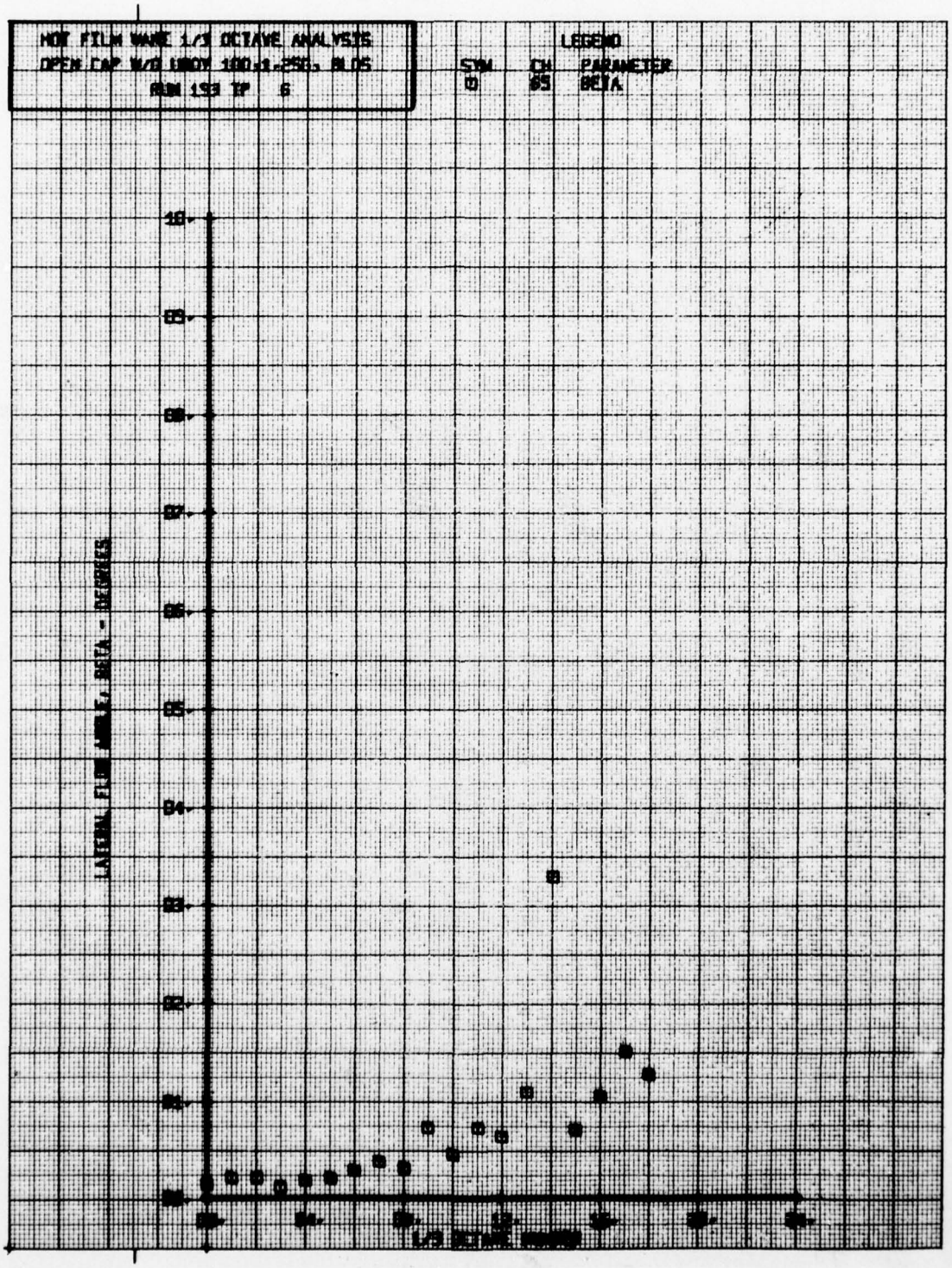

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UROM 100,1-250, BLDS
RUN 153 TP 8
LEGEND
SYM CH PARAMETER
66 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE

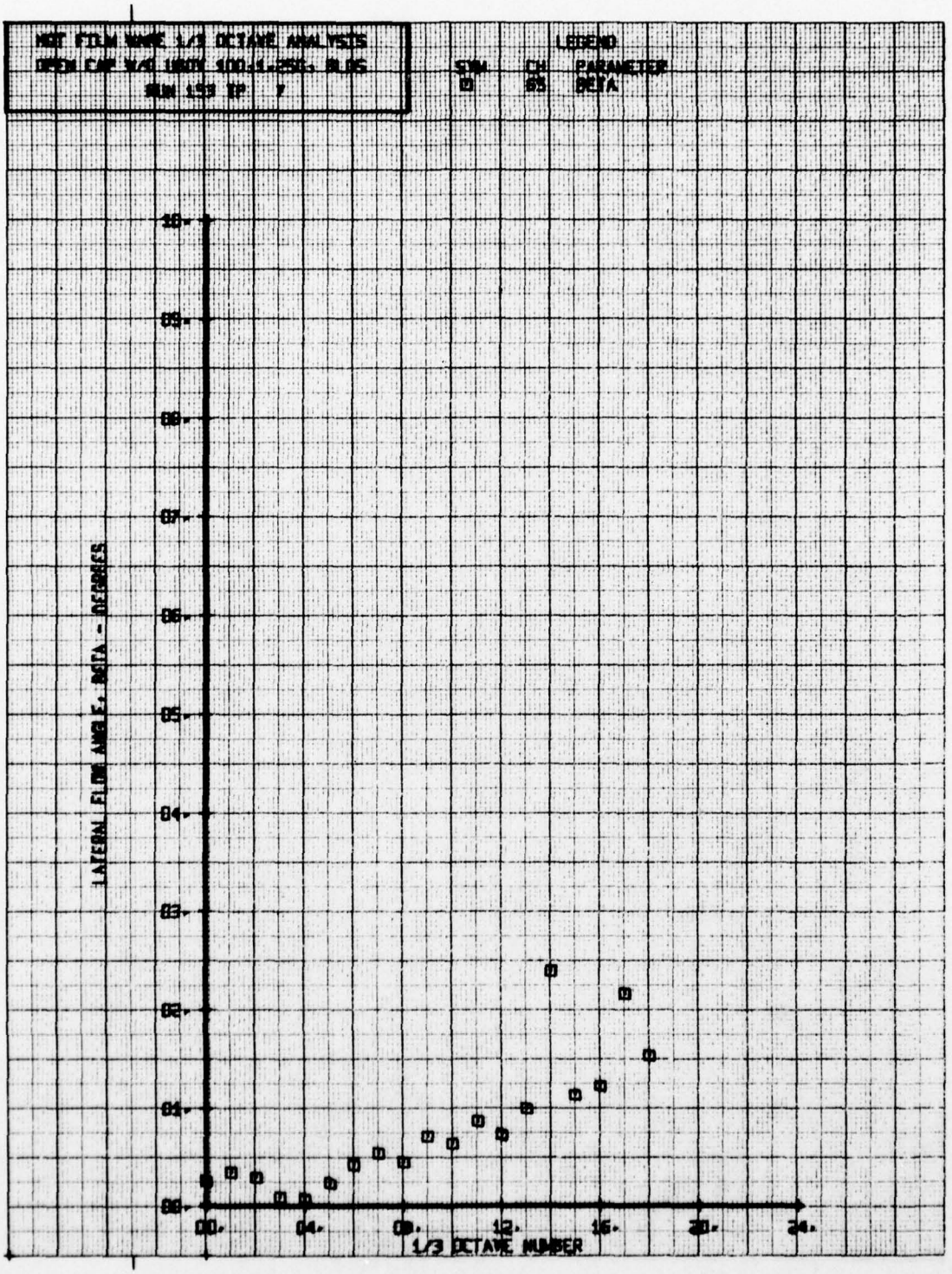

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBODY 100,1.25G, BLDS
RUN 193 TP 2
LEGEND
SYM CH PARAMETER
0 65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER

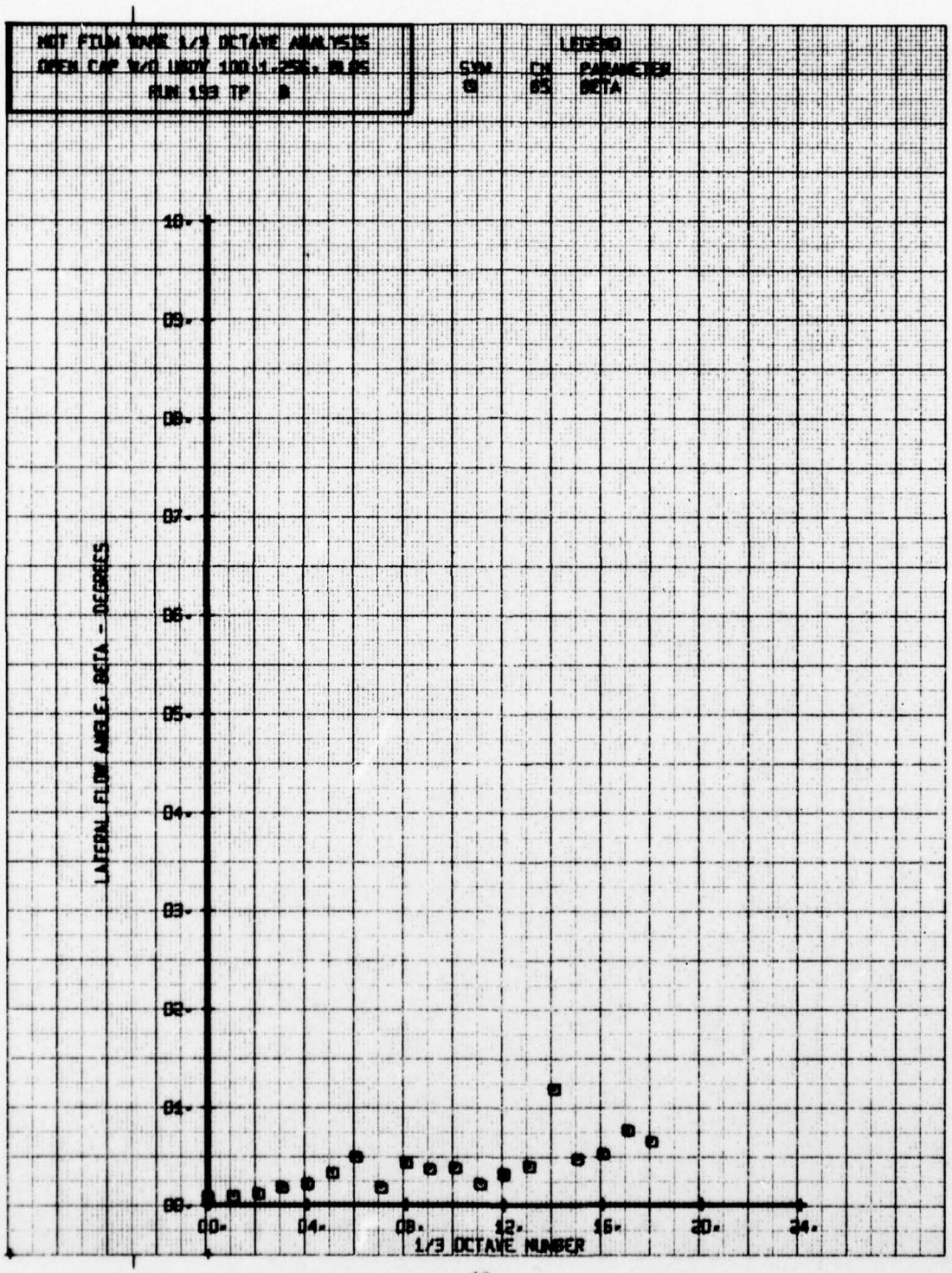

HOT FILM WAKE L/3 OCTAVE ANALYSIS
OPEN CAP 9V0 UBOX 100.2.25D. BL05
RUN 199 TP 3
LEGEND
SYM CH PARAMETER
BETA
LATERAL FLOW ANGLE, BETA - DEGREES
L/3 OCTAVE NUMBER

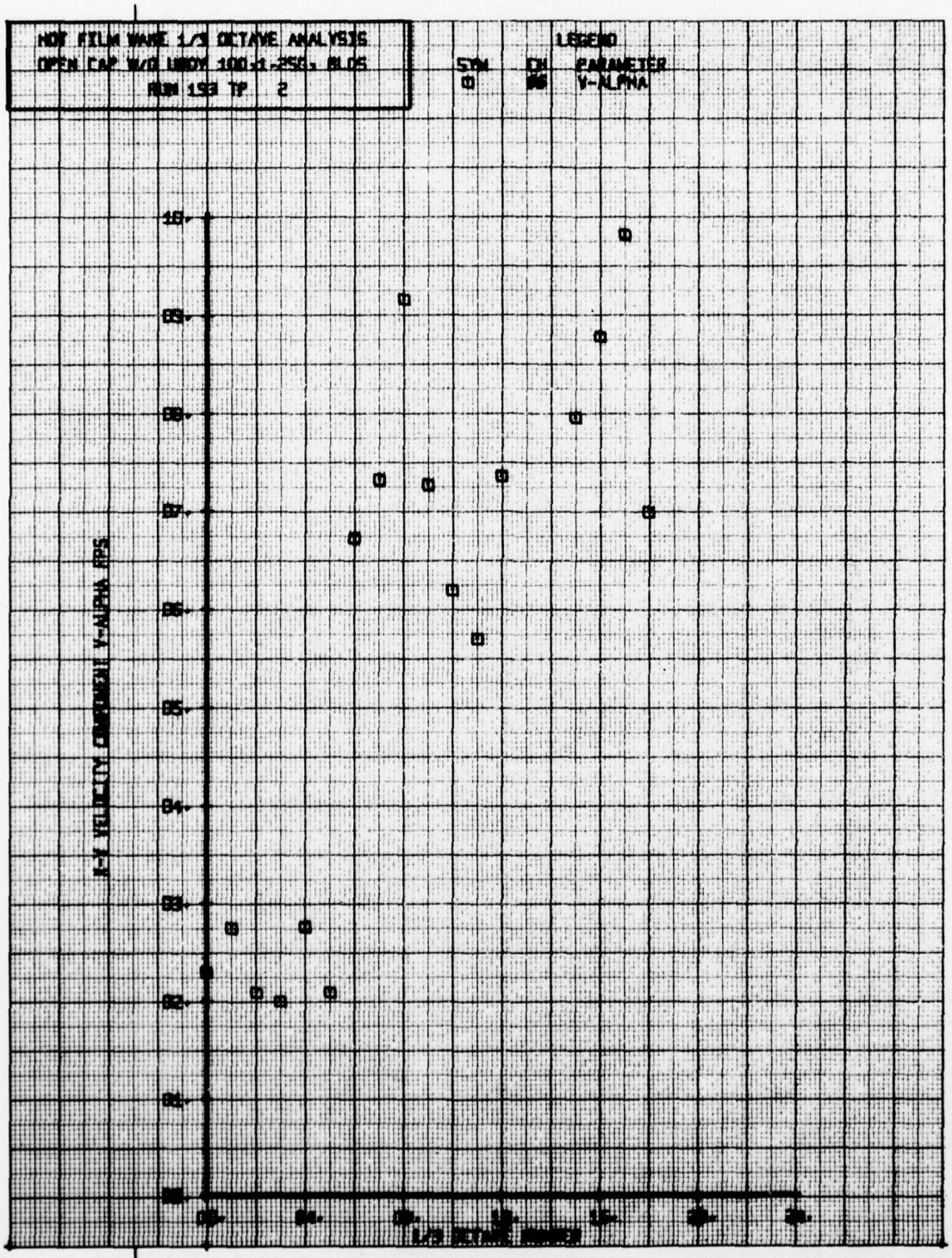

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O WINDOW 180,1.25E+ 6LOS
RUN 139 TP 4
LEGEND
SYM CH PARAMETER
0 25 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER
00.
04.
08.
12.
16.
20.
24.

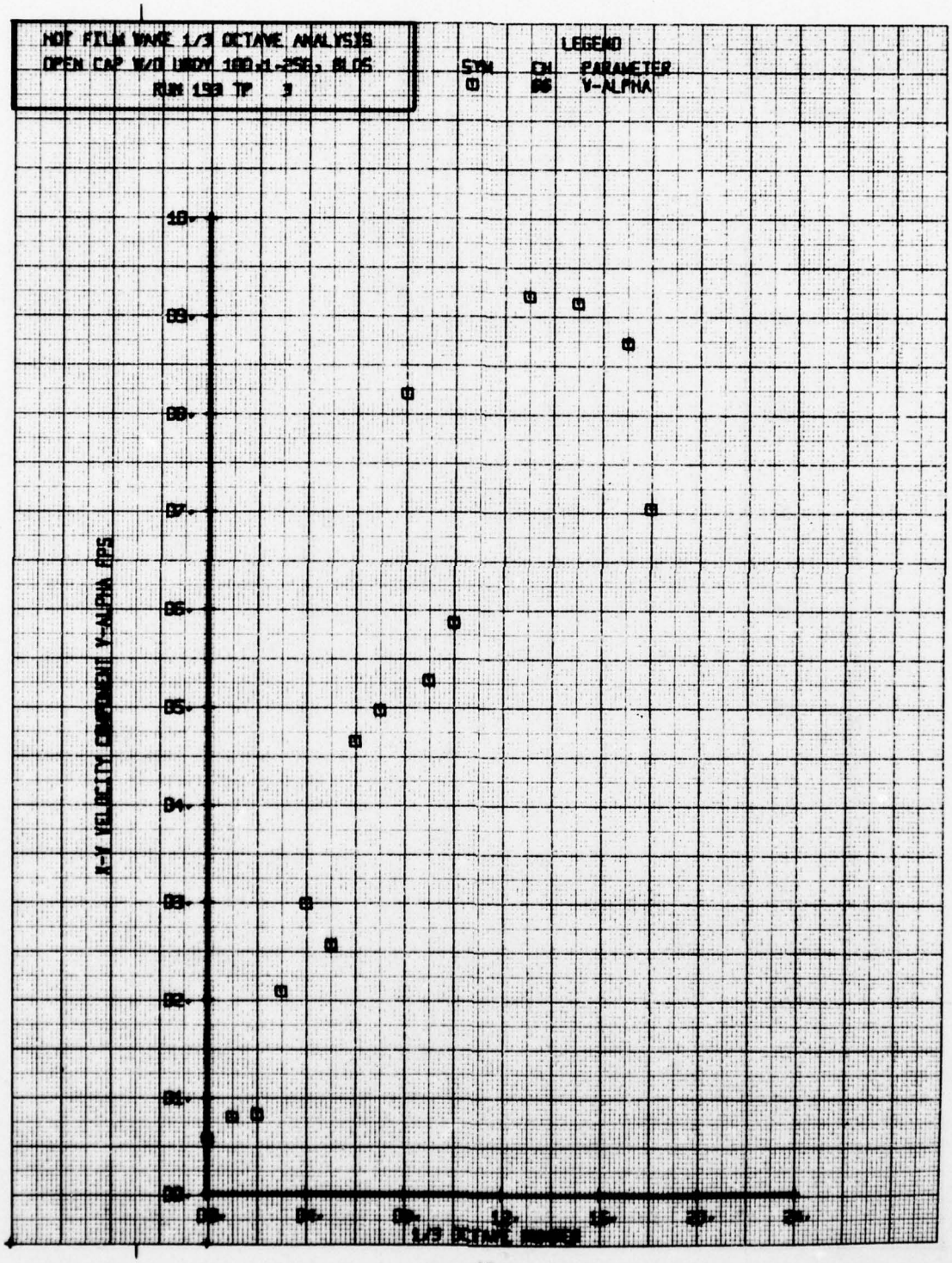

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O HORN 100.0 .250. BLDS
RUN 159 TP 5
LEGEND
SYM ID PARAMETER
BETA
LAMINAR FLOW ANGLE, BETA, DEGREES

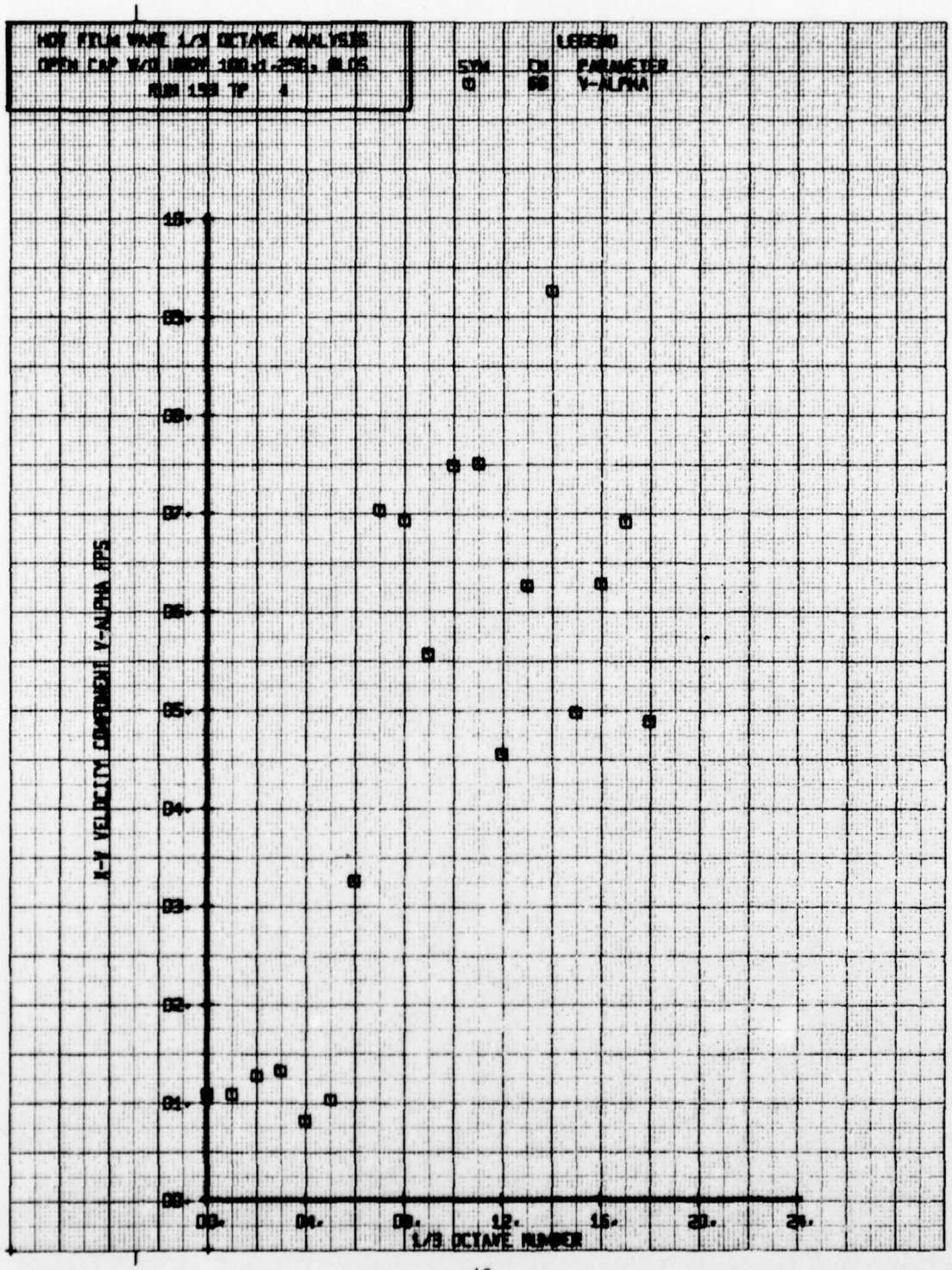

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O LNOV 100,1,250, BLDS
RUN 193 TP 6
LEGEND
SYM CH PARAMETER
0 65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
18
68
66
64
62
60
58
56
54
52
50
48

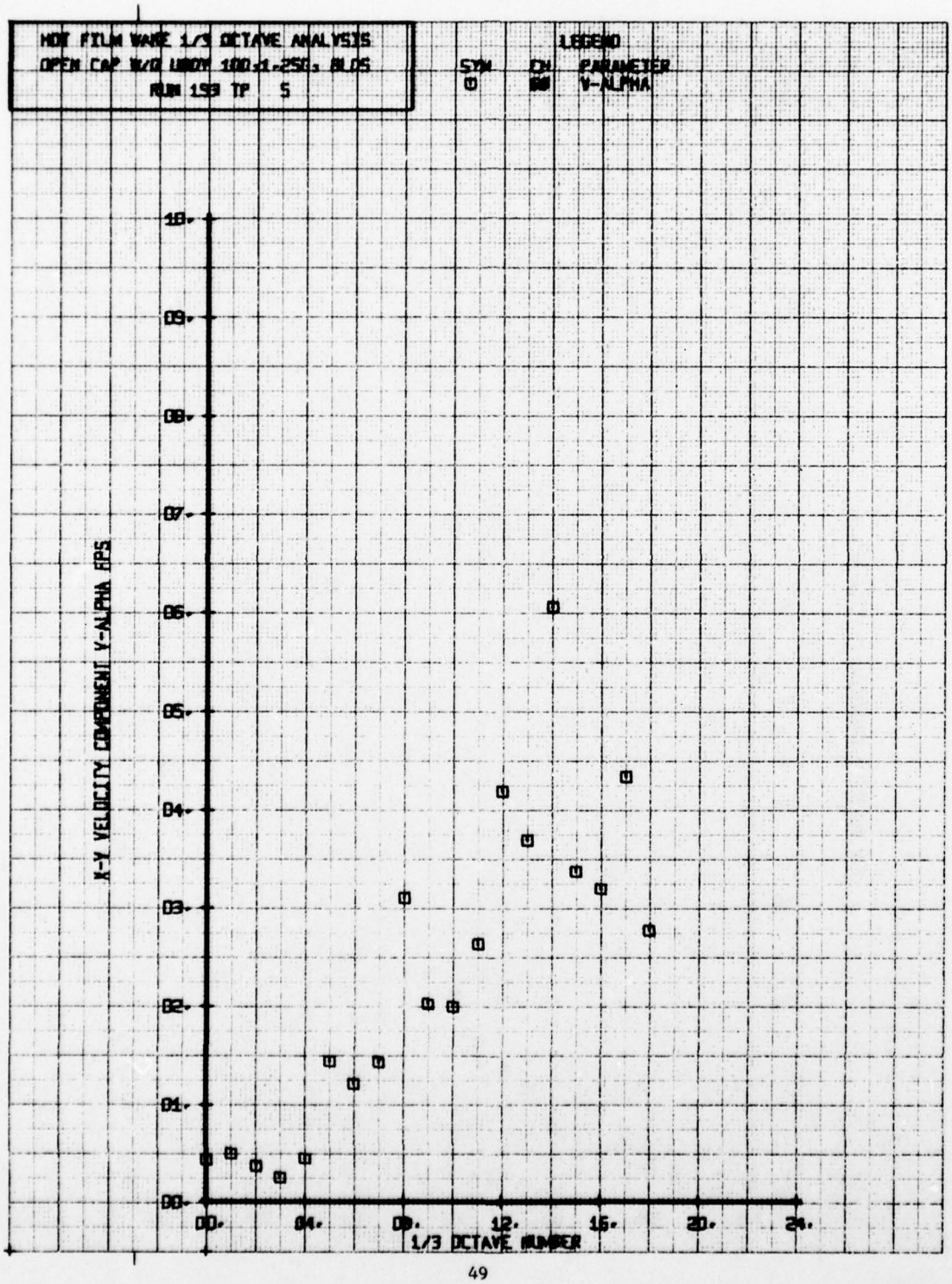

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP WAT UBDY 100.1-256. RUNS
RUN 159 TP 7
LEGEND
SYM CH PARAMETER
BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER

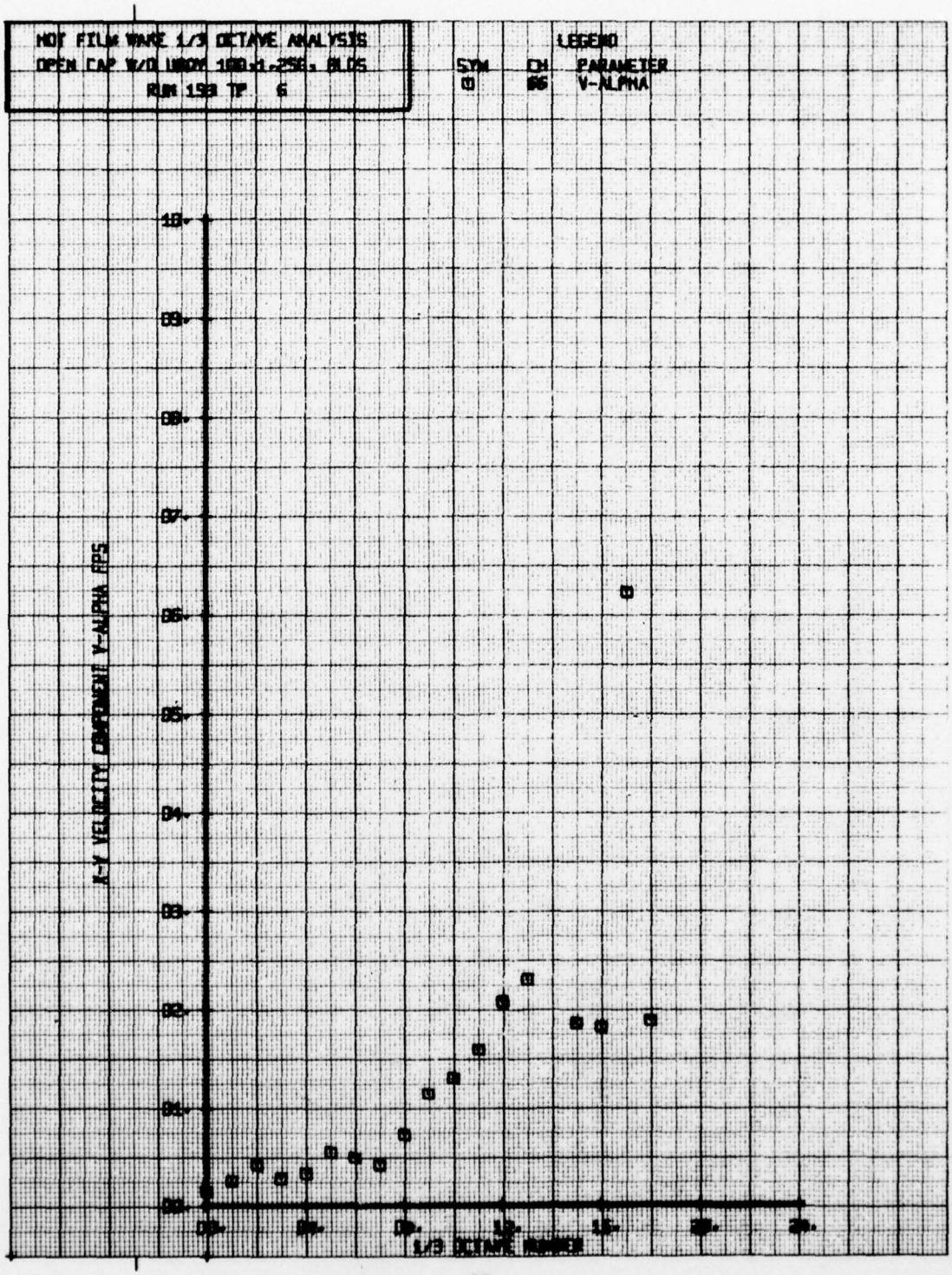

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY 100.1-256. RUN
RUN 153 TP
LEGEND
SYM
CH
PARAMETER
BETA
10.
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LATERAL FLOW ANGLE, BETA - DEGREES
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04.
08.
12.
16.
20.
24.
1/3 OCTAVE NUMBER

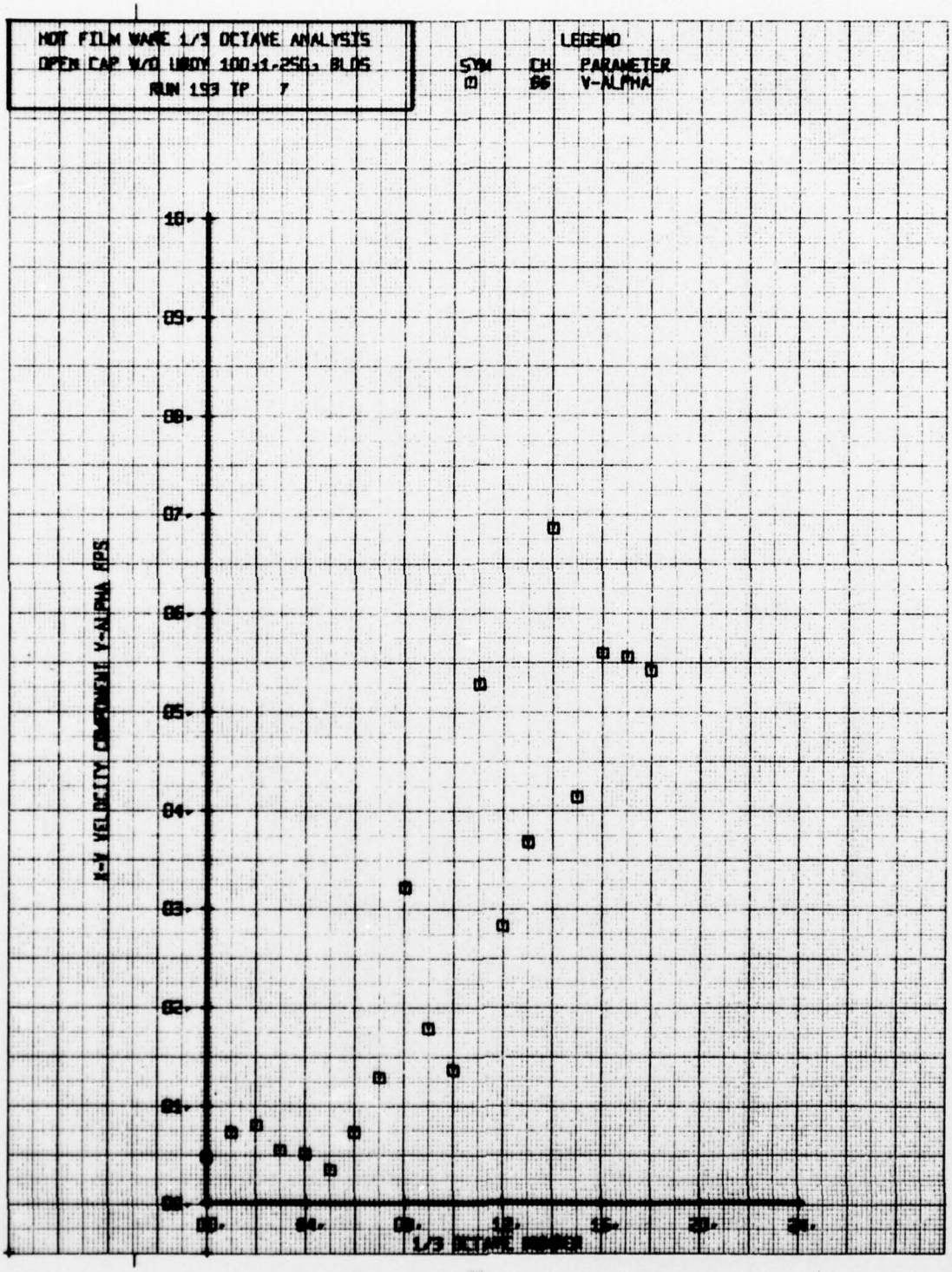

NOR FILM WAVE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UNDOM 100:1.25G: BLDS
RUN 193 TP 2
LEGEND
SYM CH PARAMETER
V-ALPHA
SPL WHEN-A WEIGHTED (REFERENCE 1-N/M SQ)
1/3 OCTAVE

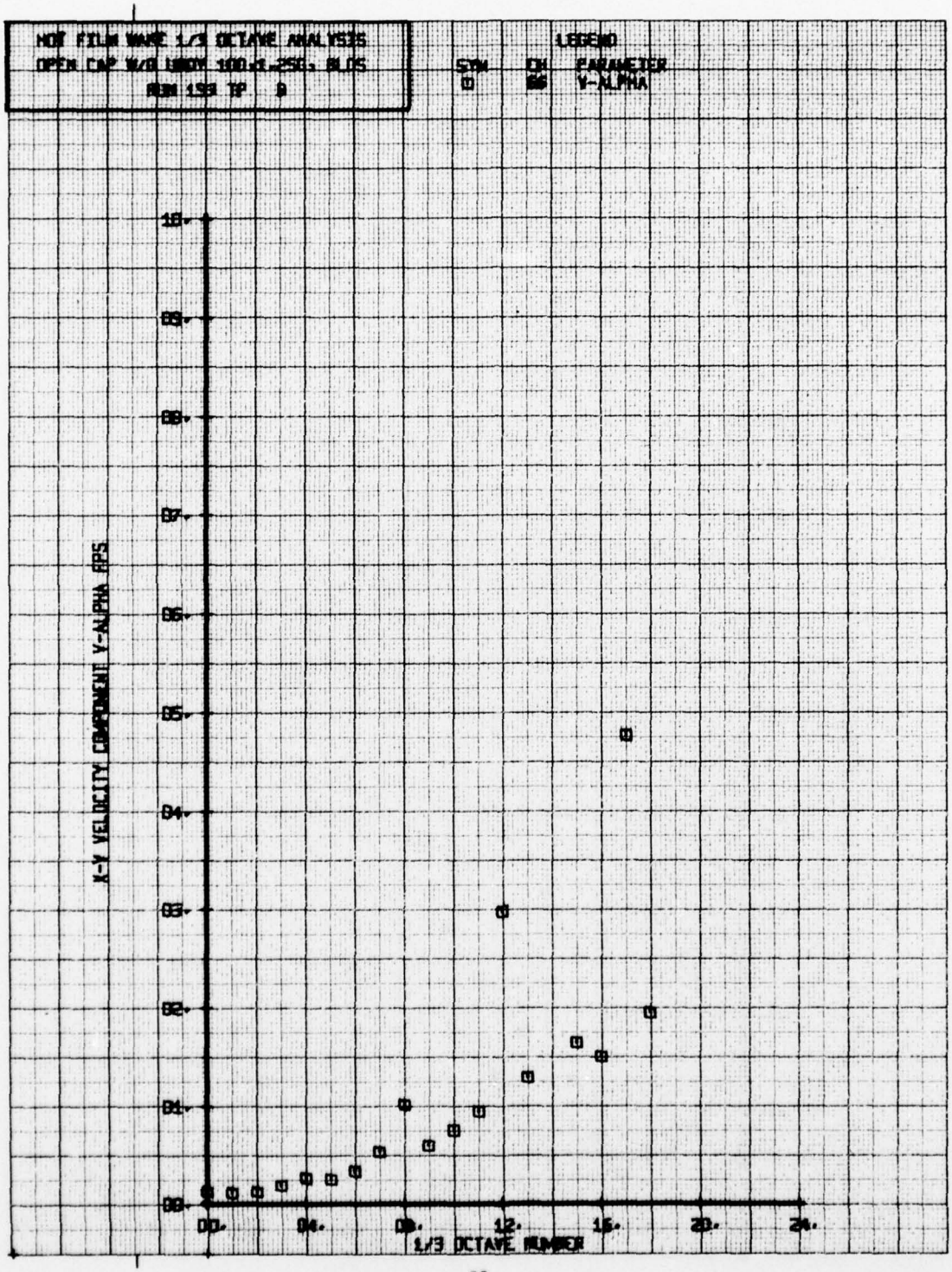

HOT FILM WAVE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O WNDW 100.1-2SEC, #LOS
RUN 159 TP 3
LEGEND
SYM CH PARAMETER
V-ALPHA
A-V VELOCITY COMPONENT V-ALPHA RPS

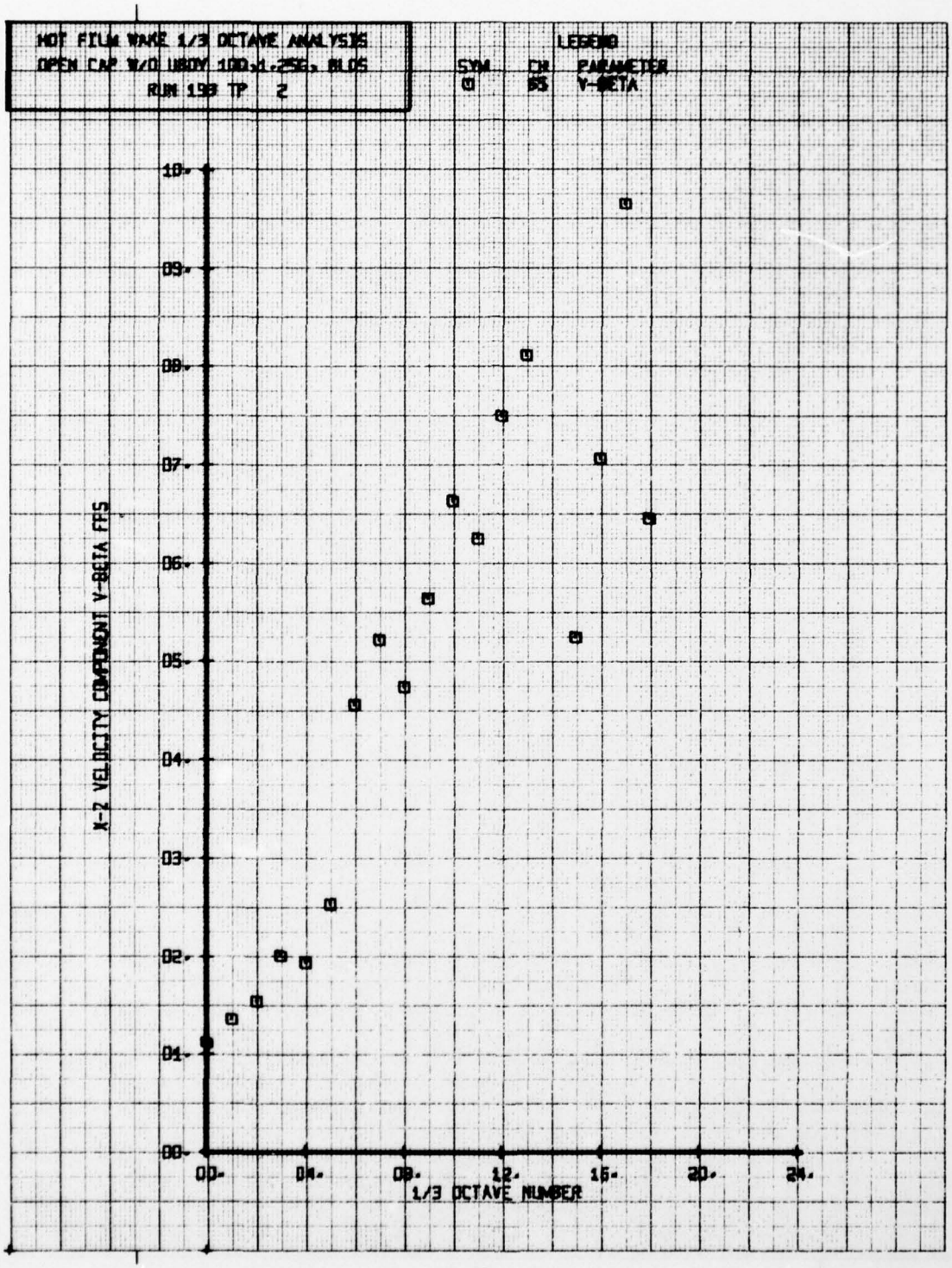

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O LEDGE 100 x 1.25IN. BLDS
RUN 158 TP 4
LEGEND
SYM CH PARAMETER
0 88 V-ALPHA
X-V VELOCITY COMPONENT V-ALPHA RPS
1/3 OCTAVE NUMBER

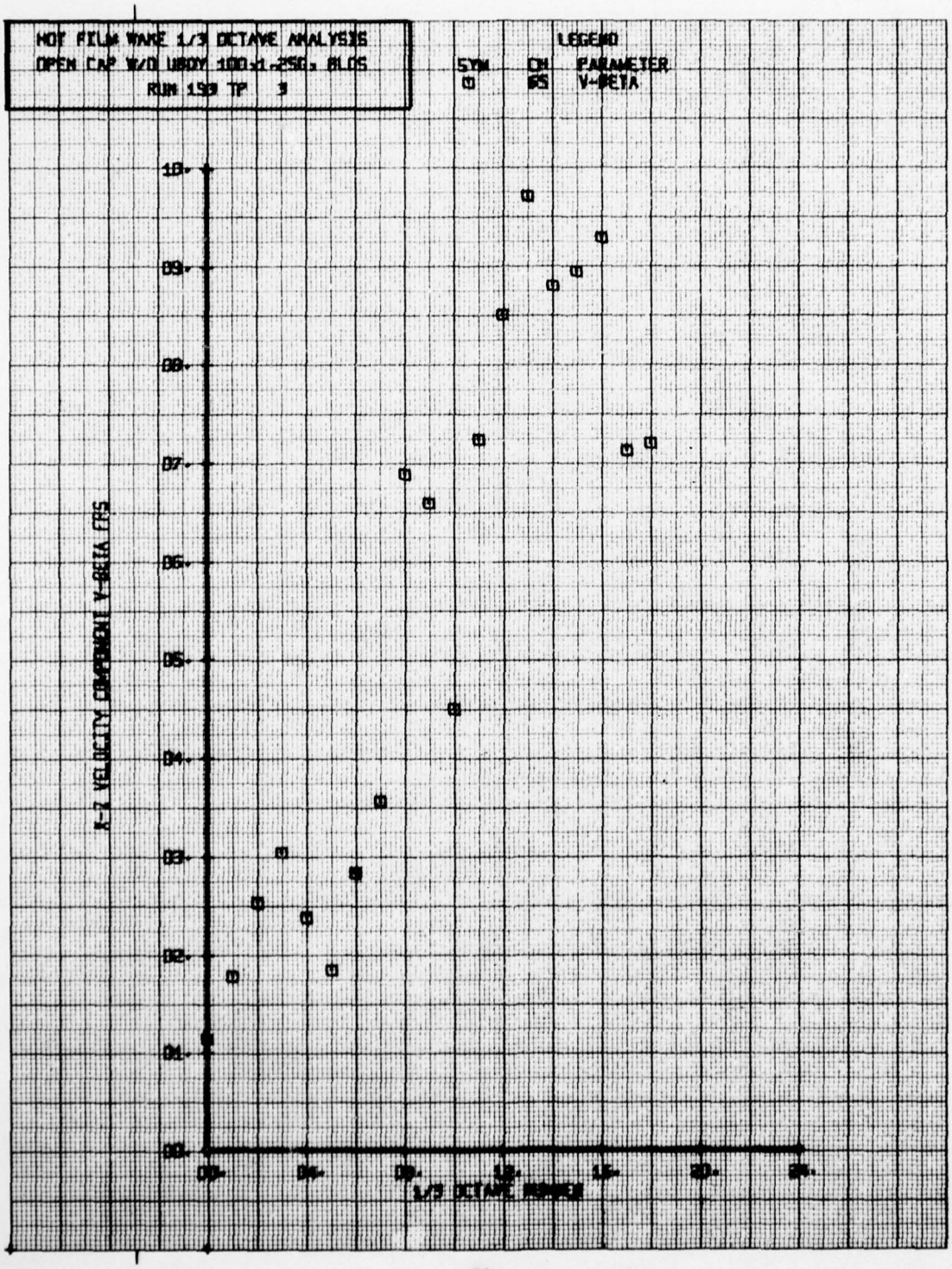

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UNDM 100x1.25G, BLDS
RUN 153 TP 5
LEGEND
SYM CH PARAMETER
0 00 V-ALPHA
X-V VELOCITY COMPONENT V-ALPHA FPS
1/3 OCTAVE NUMBER
00.
04.
08.
12.
16.
20.
24.

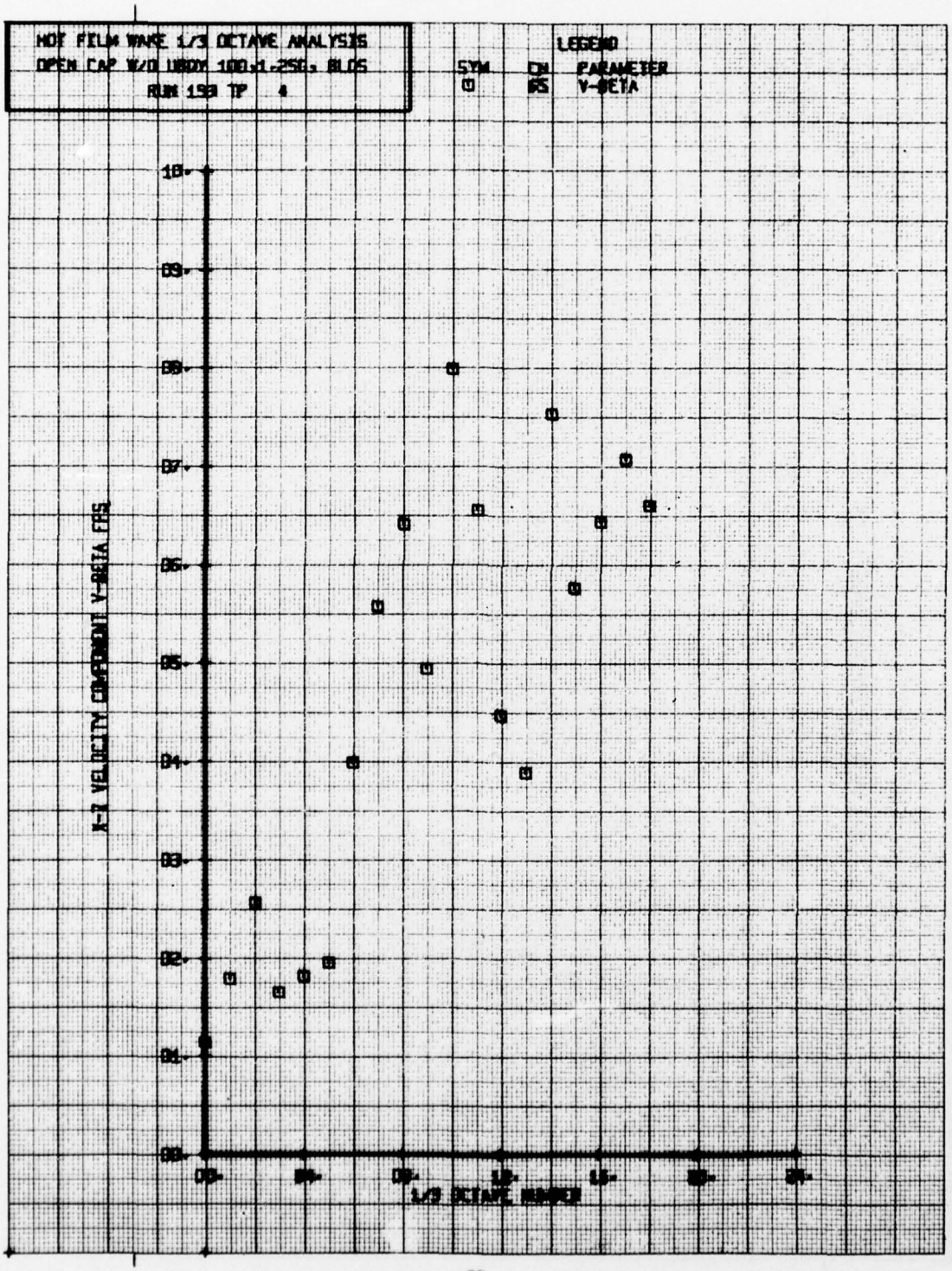

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O LIBOM 100.1.25K. BLDS
RUN 153 TP 6
LEGEND
SYM CH PARAMETER
0 86 V-ALPHA
U-V VELOCITY COMPONENT V-ALPHA RPS
1/3 OCTAVE NUMBER

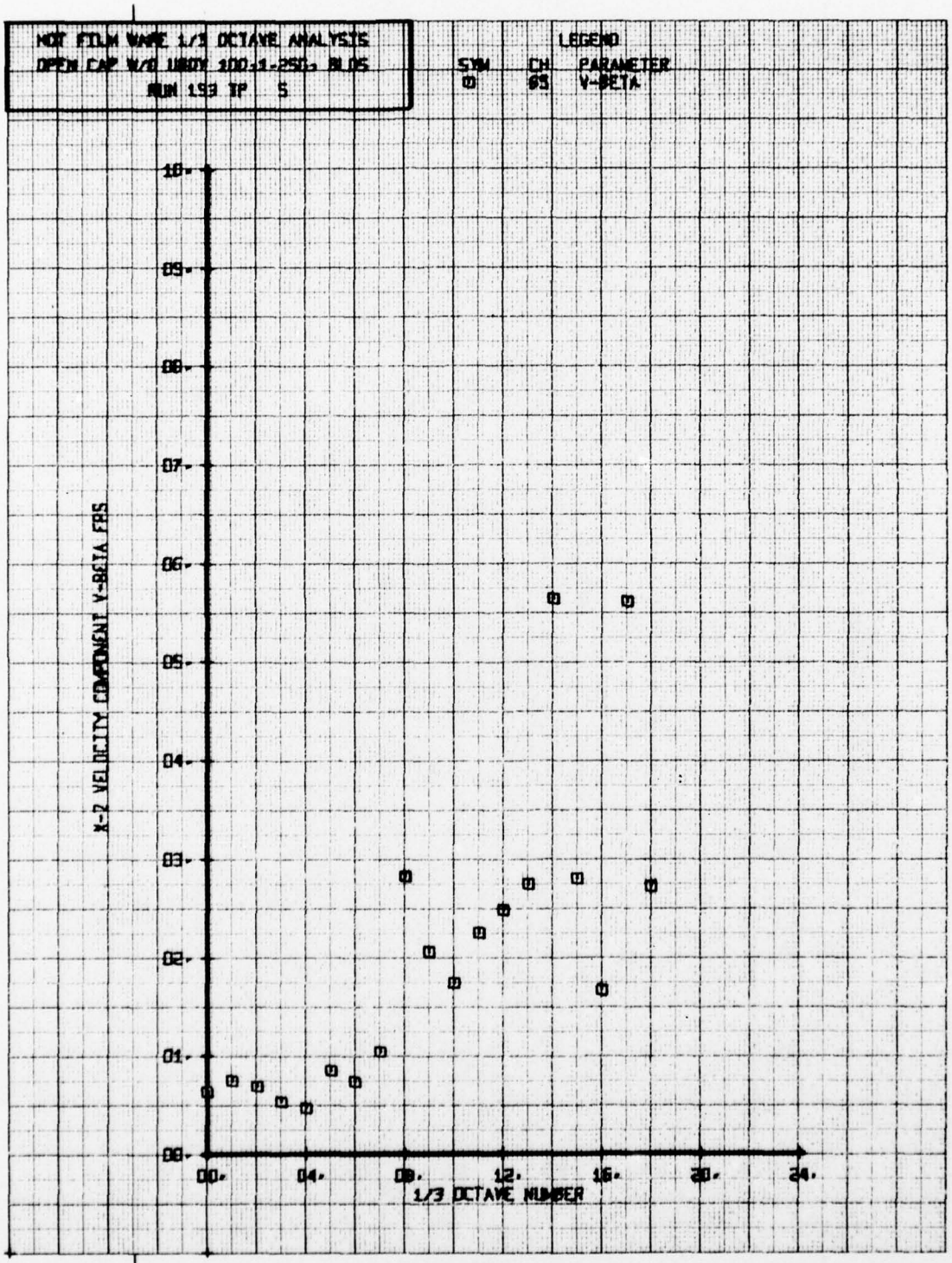

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBDY 100:1,250, BLDS
RUN 193 TP 7
LEGEND
SYM CH PARAMETER
86 V-ALPHA
18
09
08
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05
04
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12
16
20
24
U-V VELOCITY COMPONENT V-ALPHA RMS
1/3 OCTAVE NUMBER

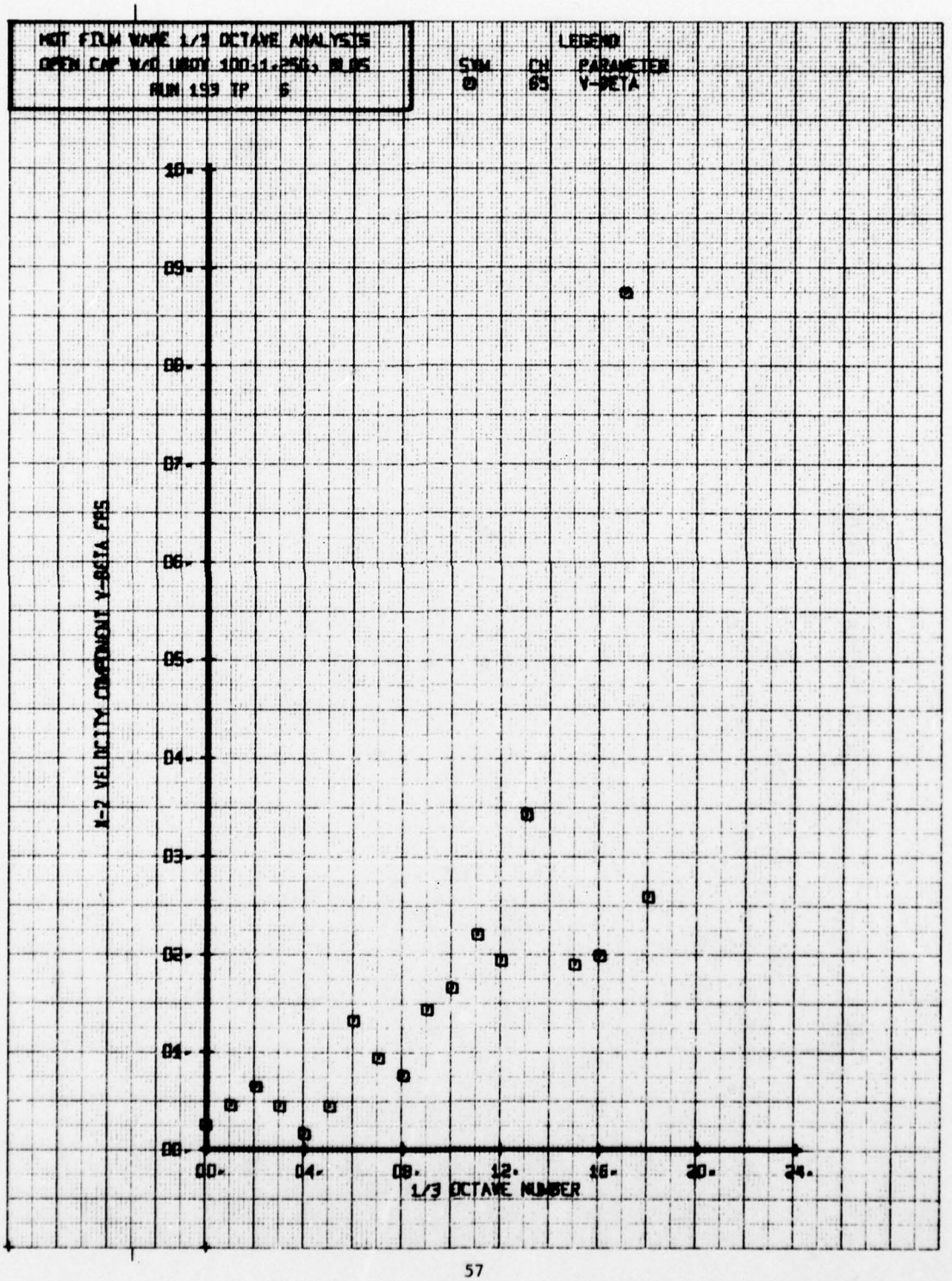

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UNDV 100:1.25G: BLDS
RUN 153 TP 9
LEGEND
SYM CH PARAMETER
V-ALPHA
X-Y VELOCITY COMPONENT V-ALPHA RPS
1/3 OCTAVE NUMBER

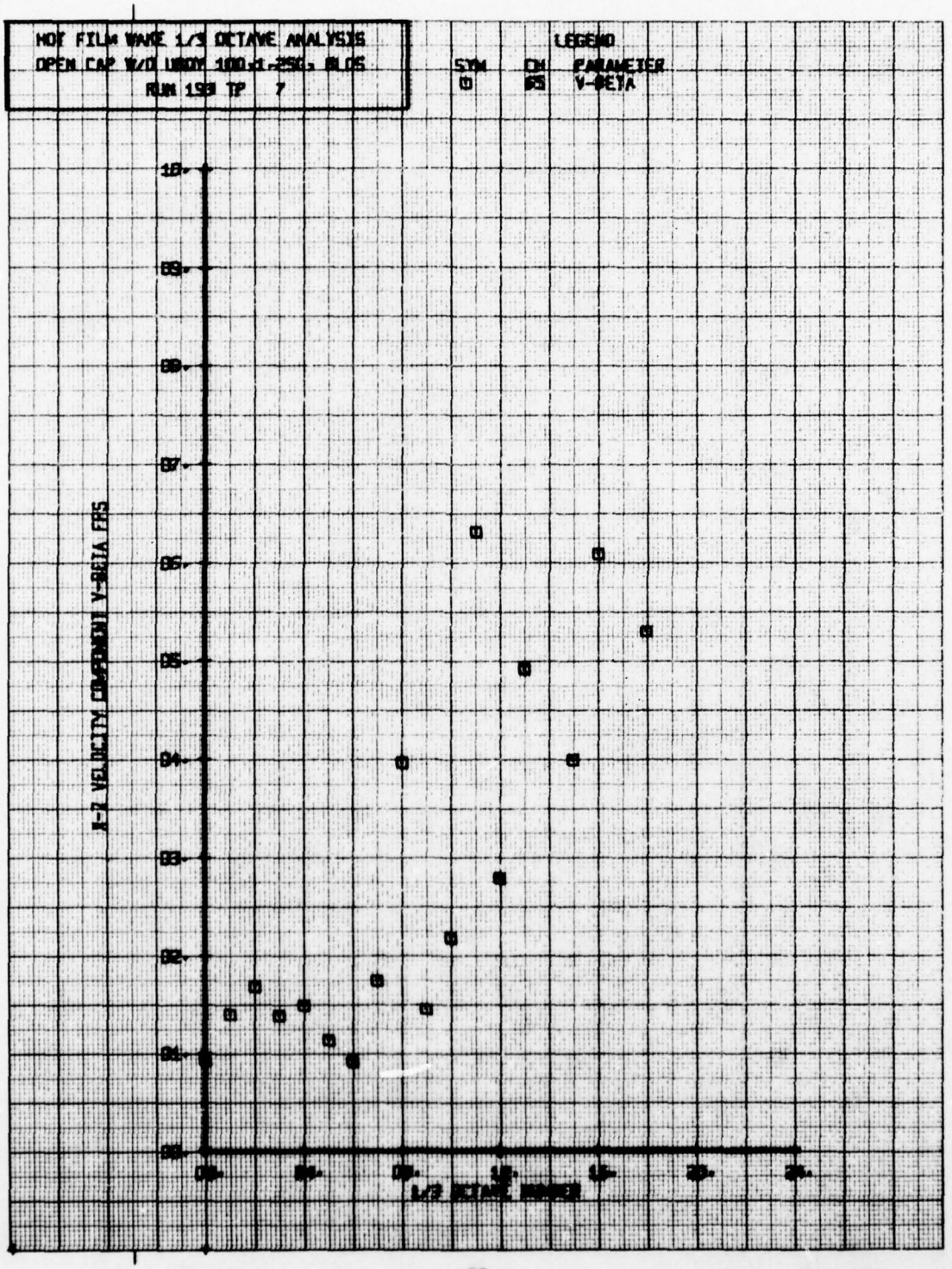

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY 100-1.25G, BLOS
RUN 193 TP 2
LEGEND
SYM CH PARAMETER
93 V-BETA
X-2 VELOCITY COMPONENT V-BETA FPS
10.
09.
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04.
08.
12.
16.
20.
24.
1/3 OCTAVE NUMBER

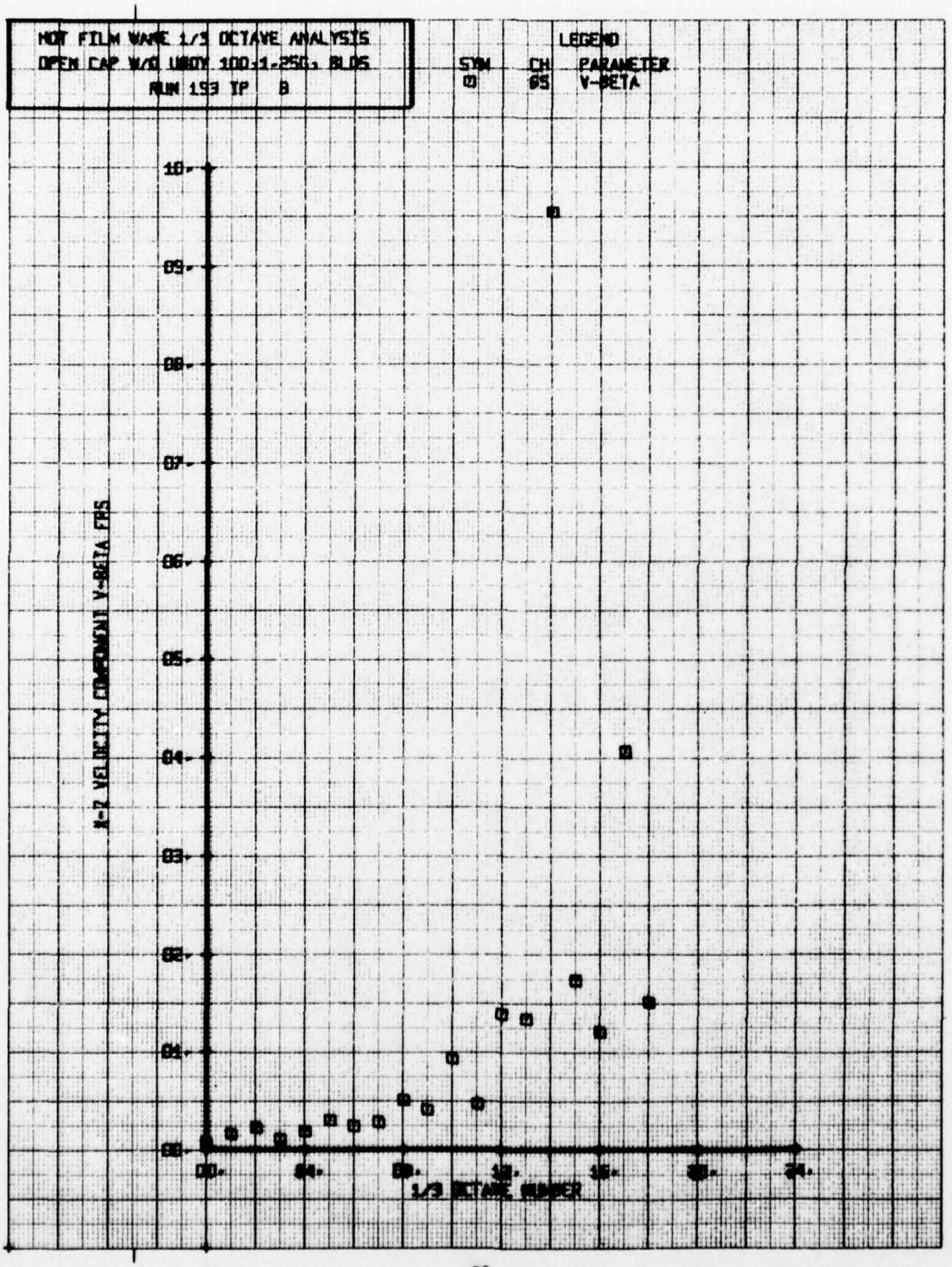

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O BODY 100-1.25G, 8LOS
RUN 159 TP 3
LEGEND
SYM CH PARAMETER
85 V-BETA
10.
09.
08.
07.
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02.
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25.
1/3 OCTAVE NUMBER

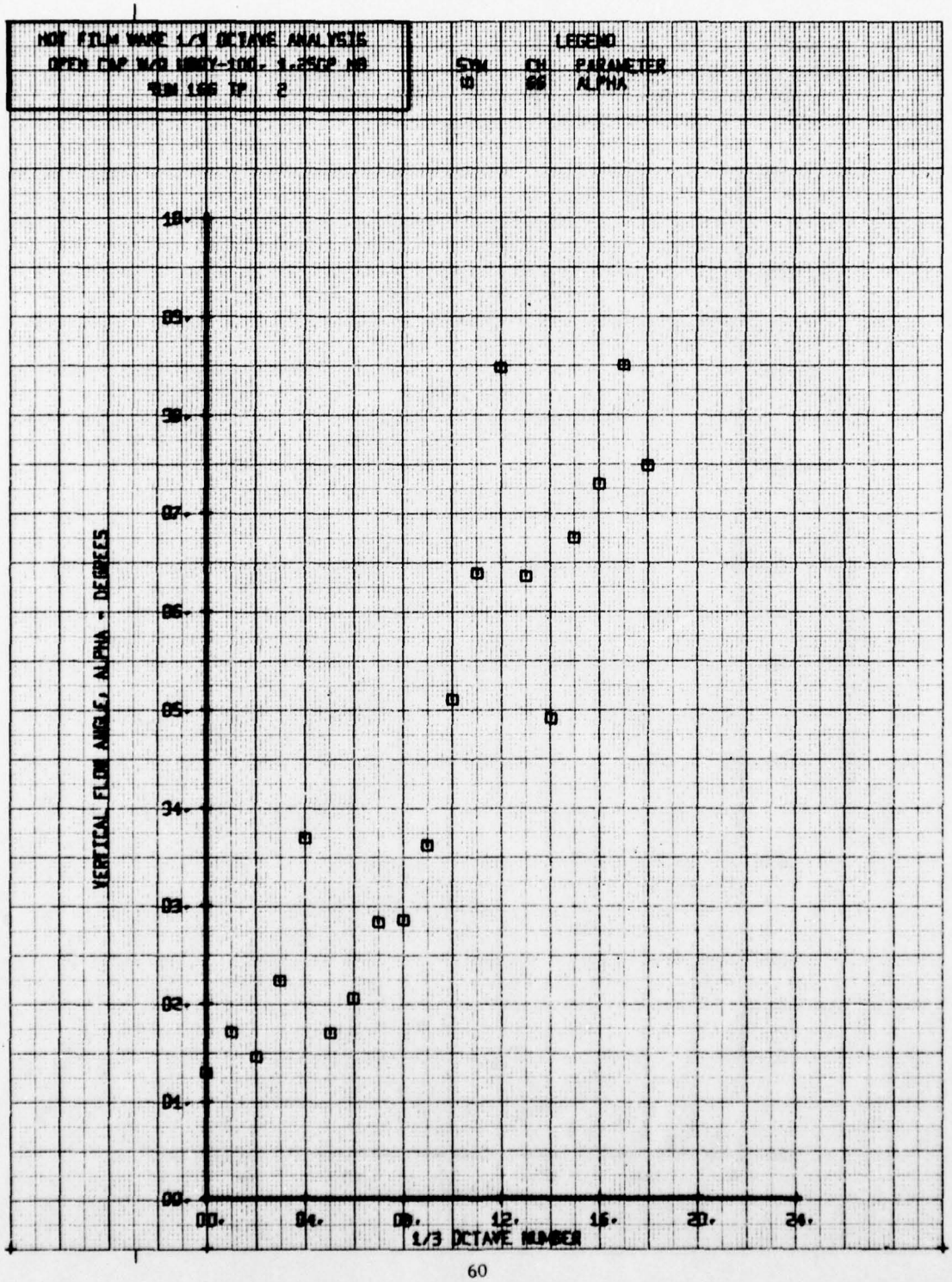

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBODY 100,1.25D, BLDS
RUN 193 TP 4
LEGEND
SYM CH PARAMETER
0 05 V-BETA
X-I VELOCITY COMPONENT V-BETA FPS
1/3 OCTAVE NUMBER

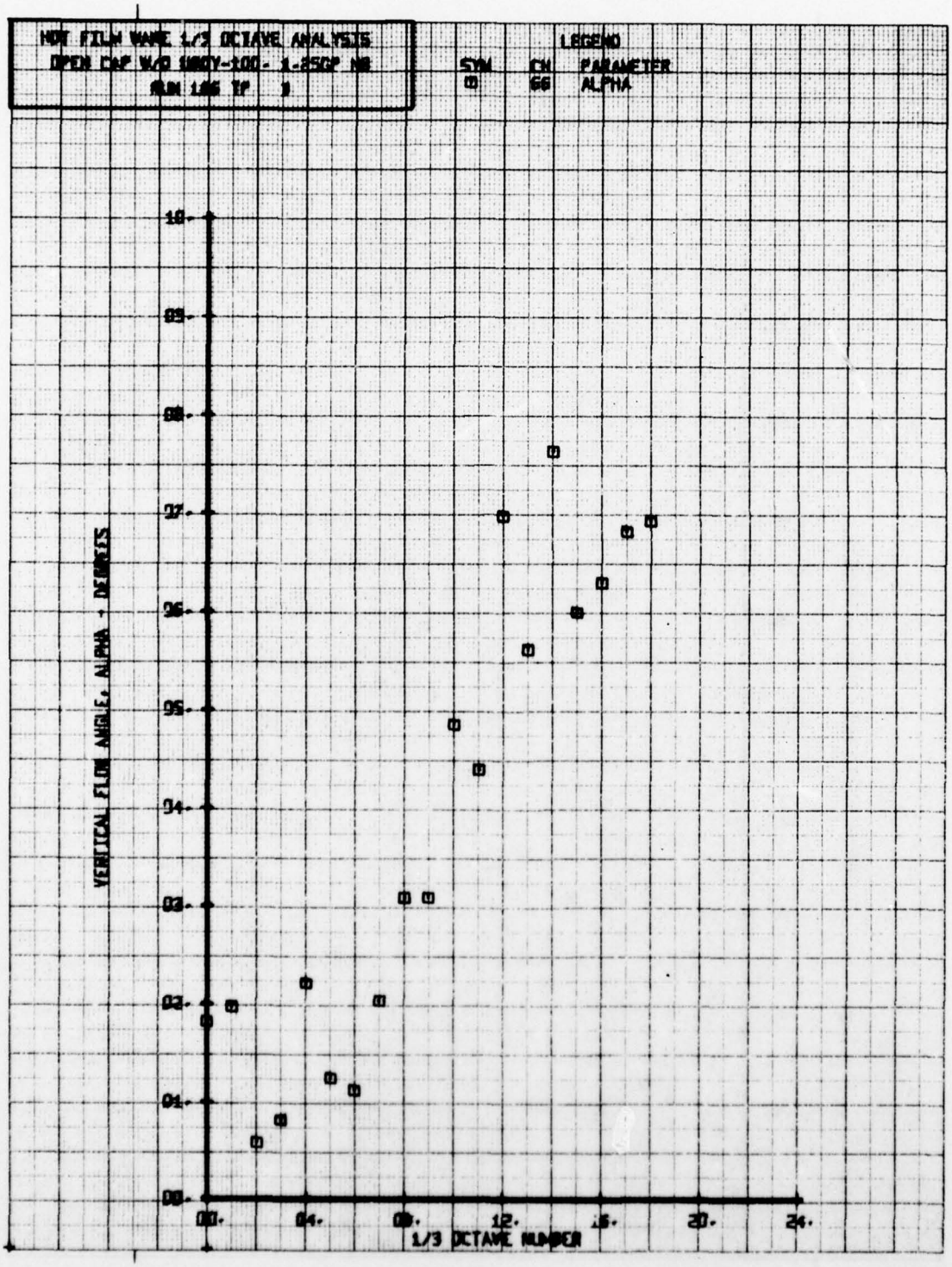

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O BODY 100-1-250-3 BLDS
RUN 193 TP 5
LEGEND
SYM CH PARAMETER
65 V-BETA
X-2 VELOCITY COMPONENT V-BETA FPS
1/3 OCTAVE NUMBER
10.
09.
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16.
20.
24.

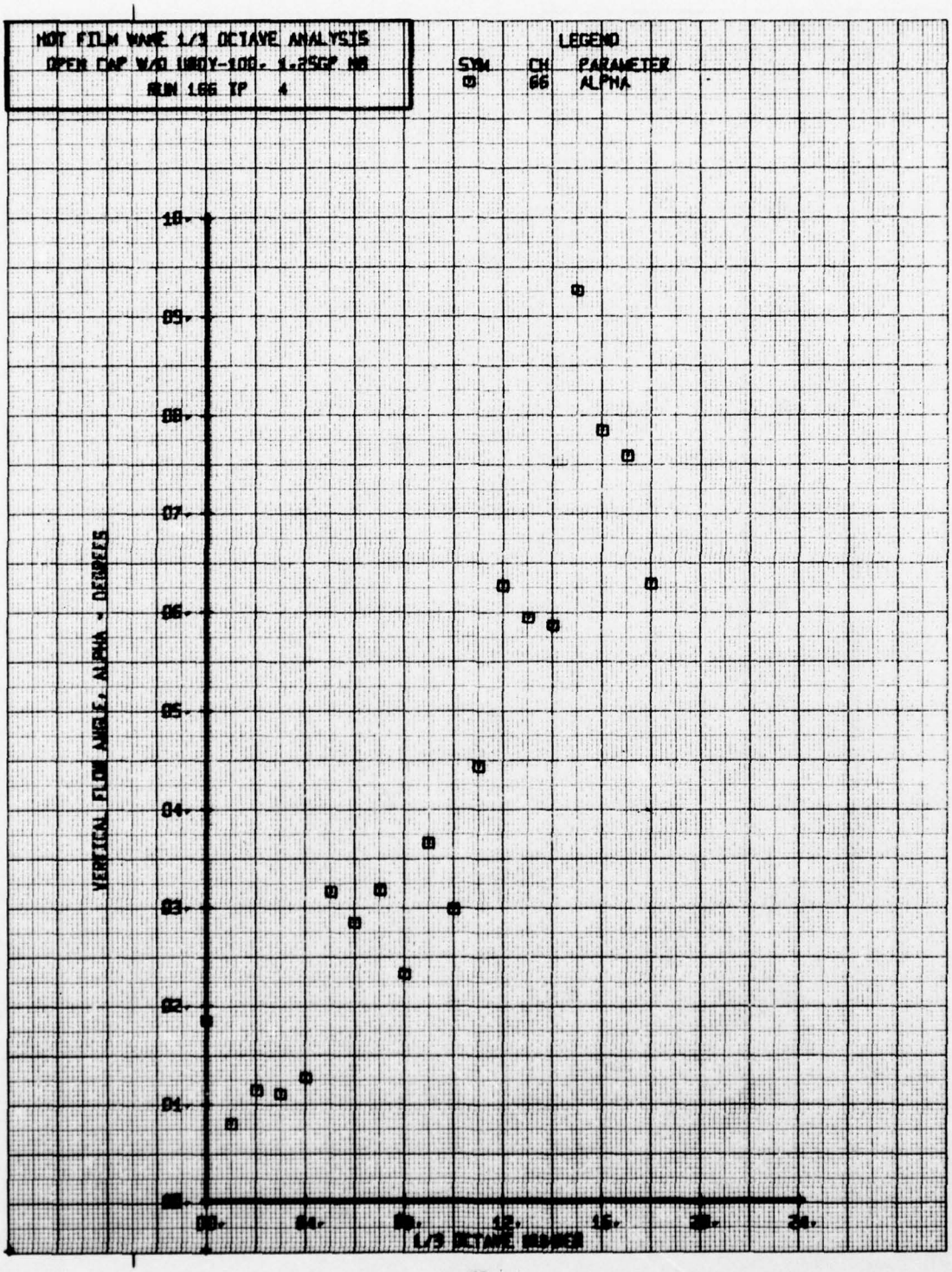

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBODY 100-1.25G, BLDS
RUN 193 TP 6
LEGEND
SYM CH PARAMETER
0 65 V-BETA
10-
09-
08-
07-
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00- 04- 08- 12- 16- 20- 24.
1/3 OCTAVE NUMBER

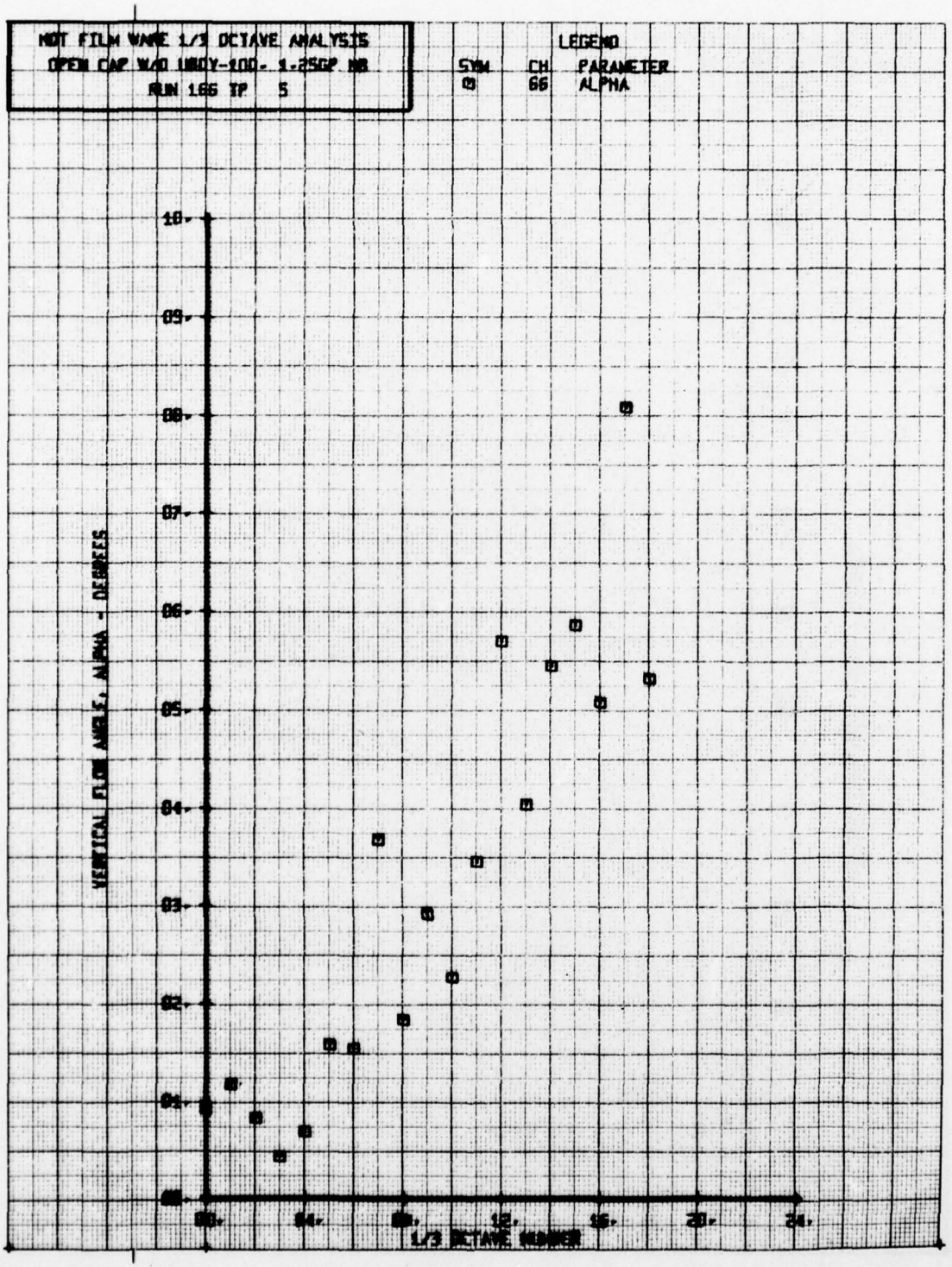

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UNDY 100,1.25G, BLOS
RUN 153 TP 7
LEGEND
SYM CH PARAMETER
85 V-BETA
10
09
08
07
06
05
04
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01
00
X-Z VELOCITY COMPONENT V-BETA FPS
1/3 OCTAVE BANDS

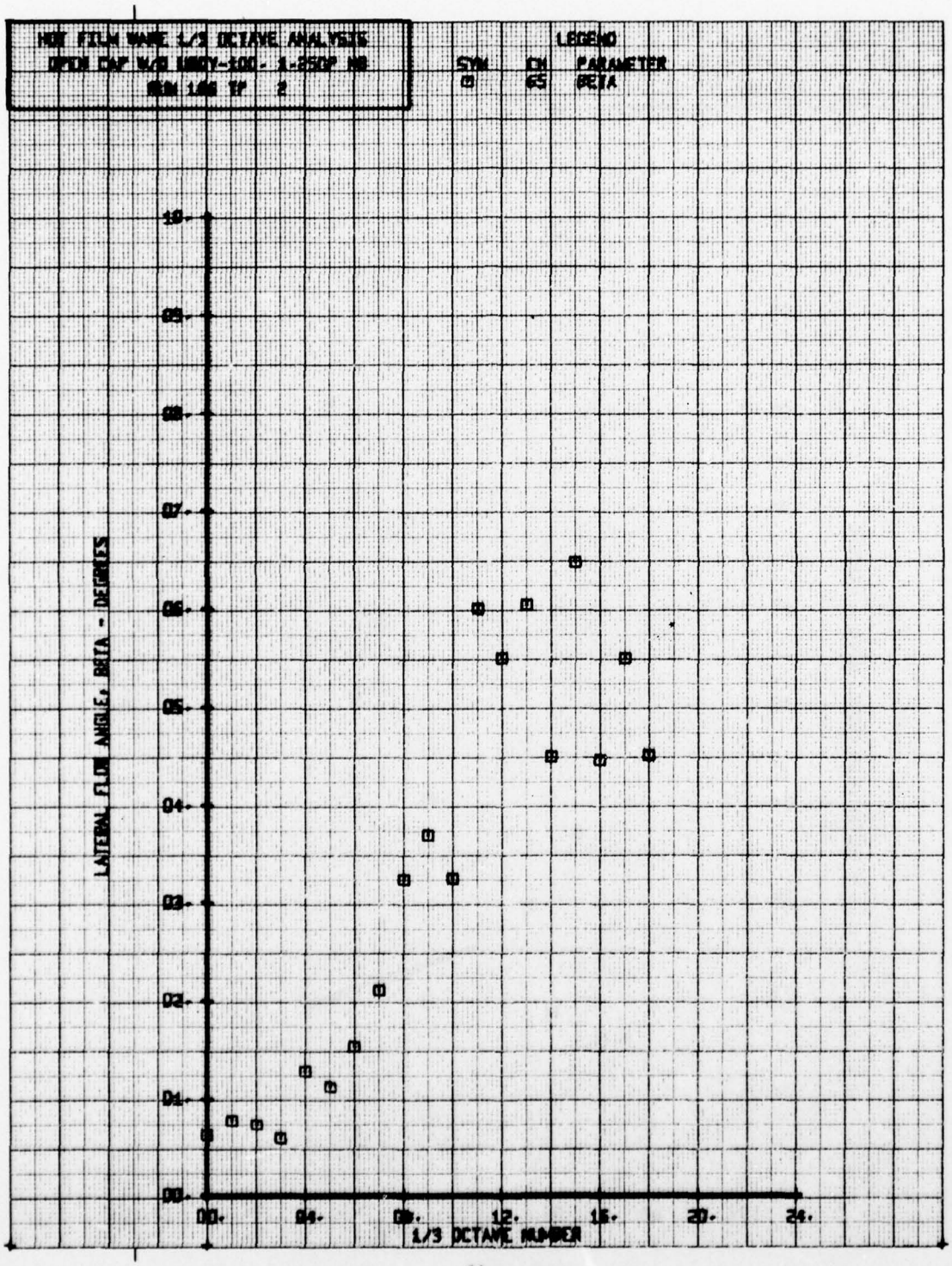

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBDY 100-1-250, BLDS
RUN 193 TP 8
LEGEND
SYM CH PARAMETER
65 V-BETA
10.
09.
08.
07.
06.
05.
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12.
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20.
24.
1/3 OCTAVE NUMBER

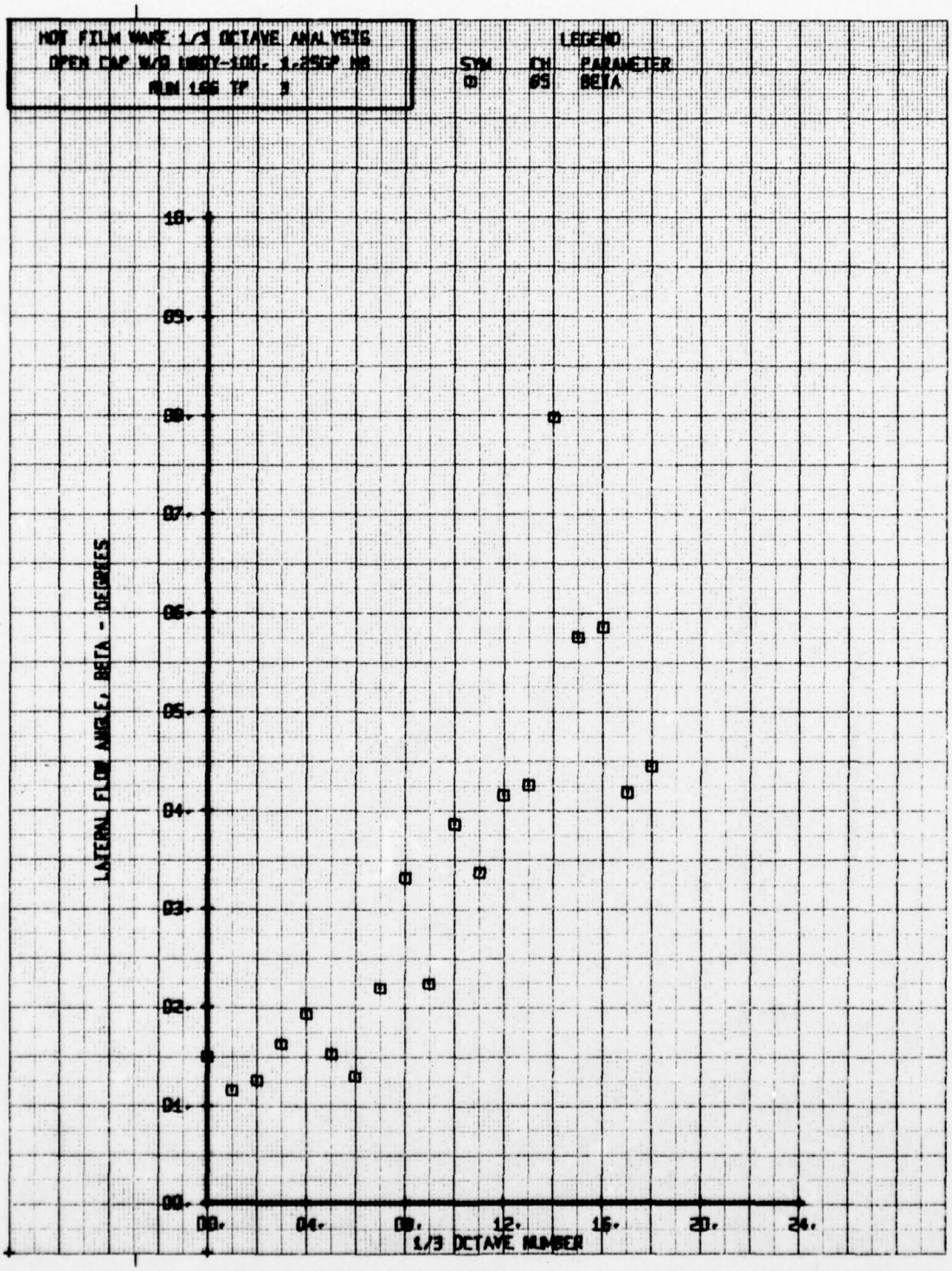

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP WAS HOWY-100. 1.25GP NB
RUN 166 TP 2
LEGEND
SYM CH PARAMETER
ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER
00.
04.
08.
12.
16.
20.
24.

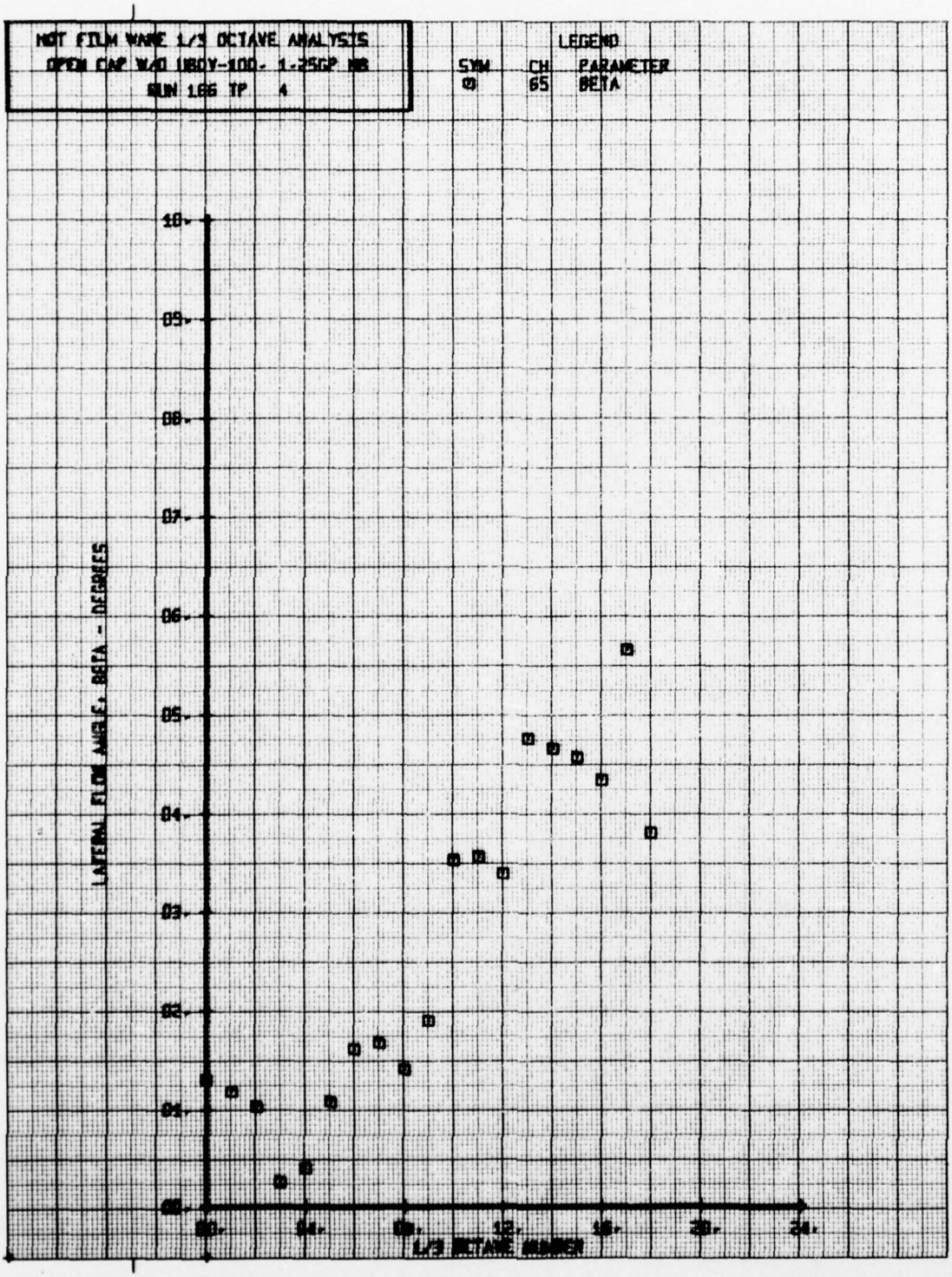

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O SWEEP-100- 1.25GP NB
RUN 186 TP 3
LEGEND
SYM CH PARAMETER
66 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

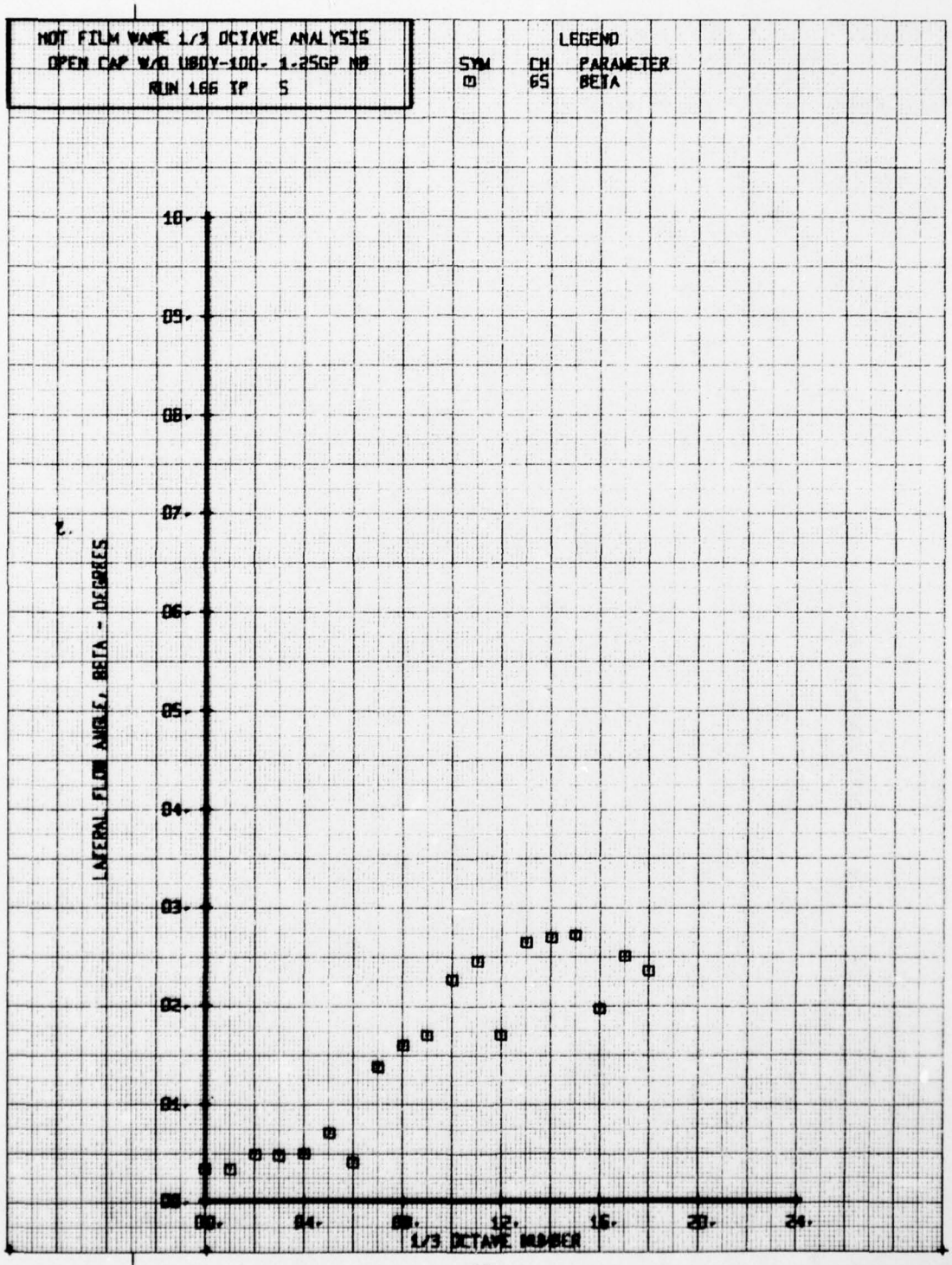

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY-100. 1.25GP NB
RUN 166 TP 4
LEGEND
SYM CH PARAMETER
66 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE

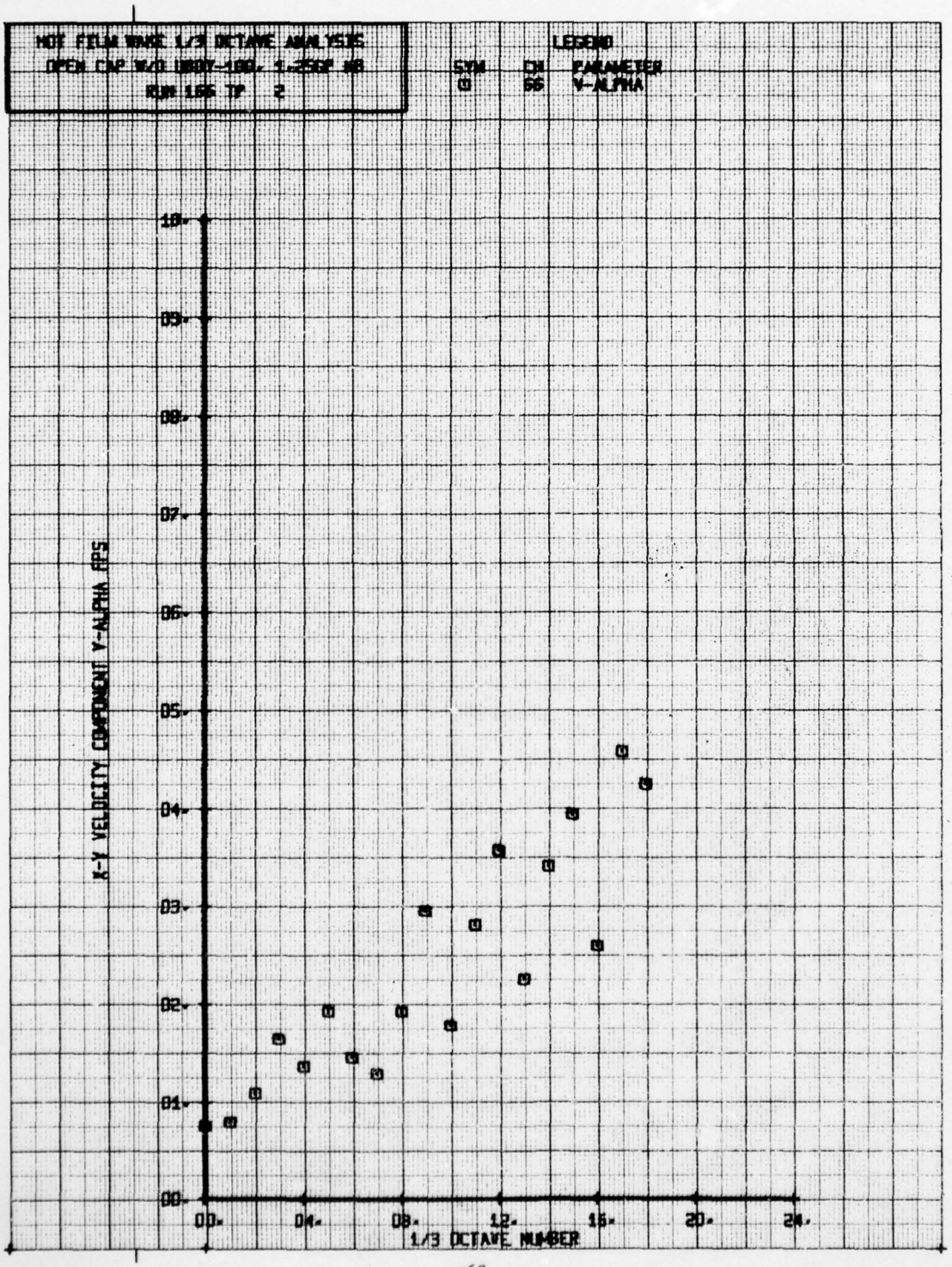

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O BODY-100- 1.25GP NB
RUN 186 TP 5
LEGEND
SYM CH PARAMETER
66 ALPHA
10.
09.
08.
07.
06.
05.
04.
03.
02.
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00.
VERTICAL FLOW ANGLE, ALPHA - DEGREES
04.
08.
12.
16.
20.
24.
1/3 OCTAVE NUMBER

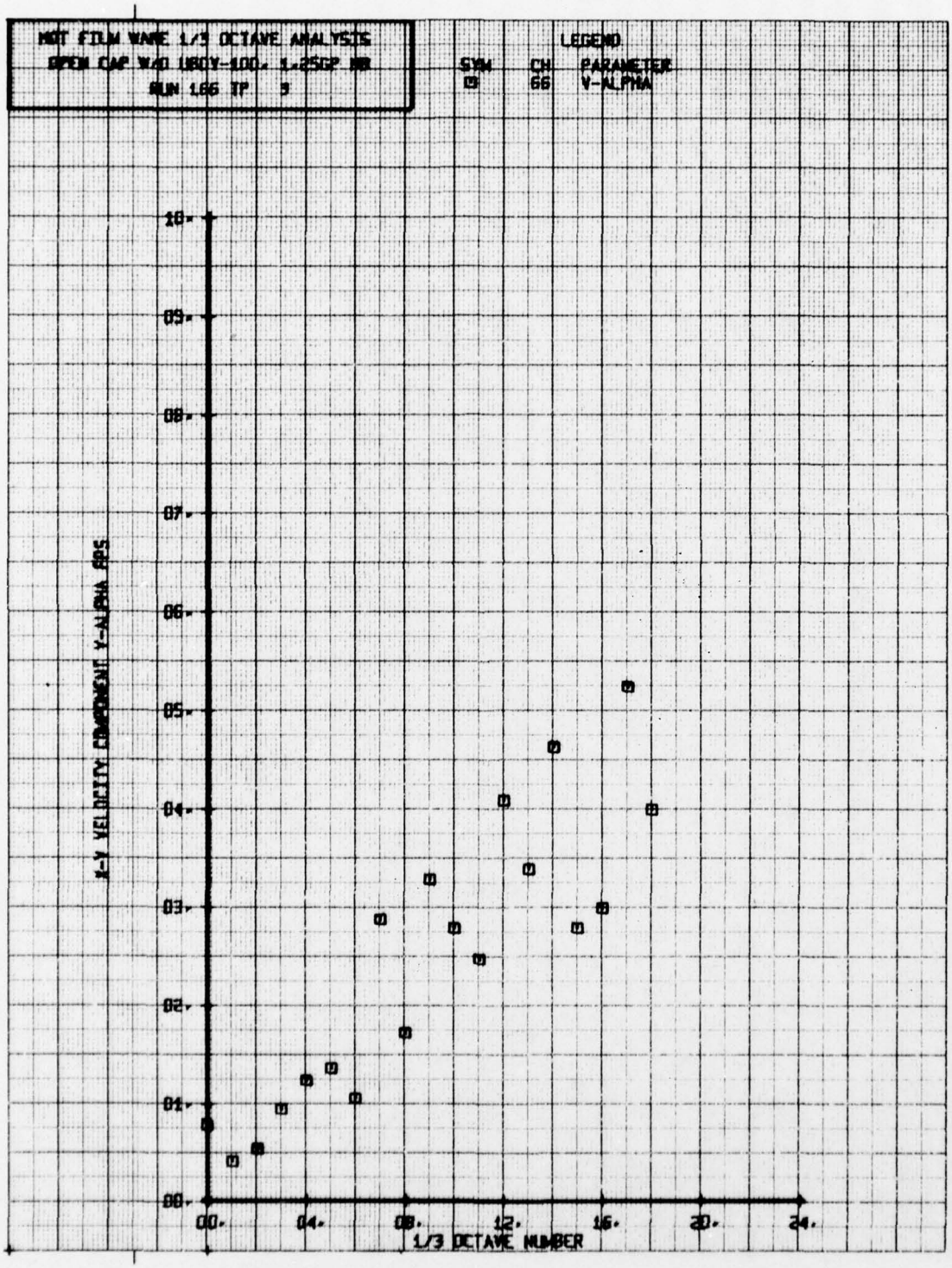

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAV W/D HWDY-100 - 1-250P NB
REN 1.66 TF 2
LEGEND
SYM CH PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER
00.
04.
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16.
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24.

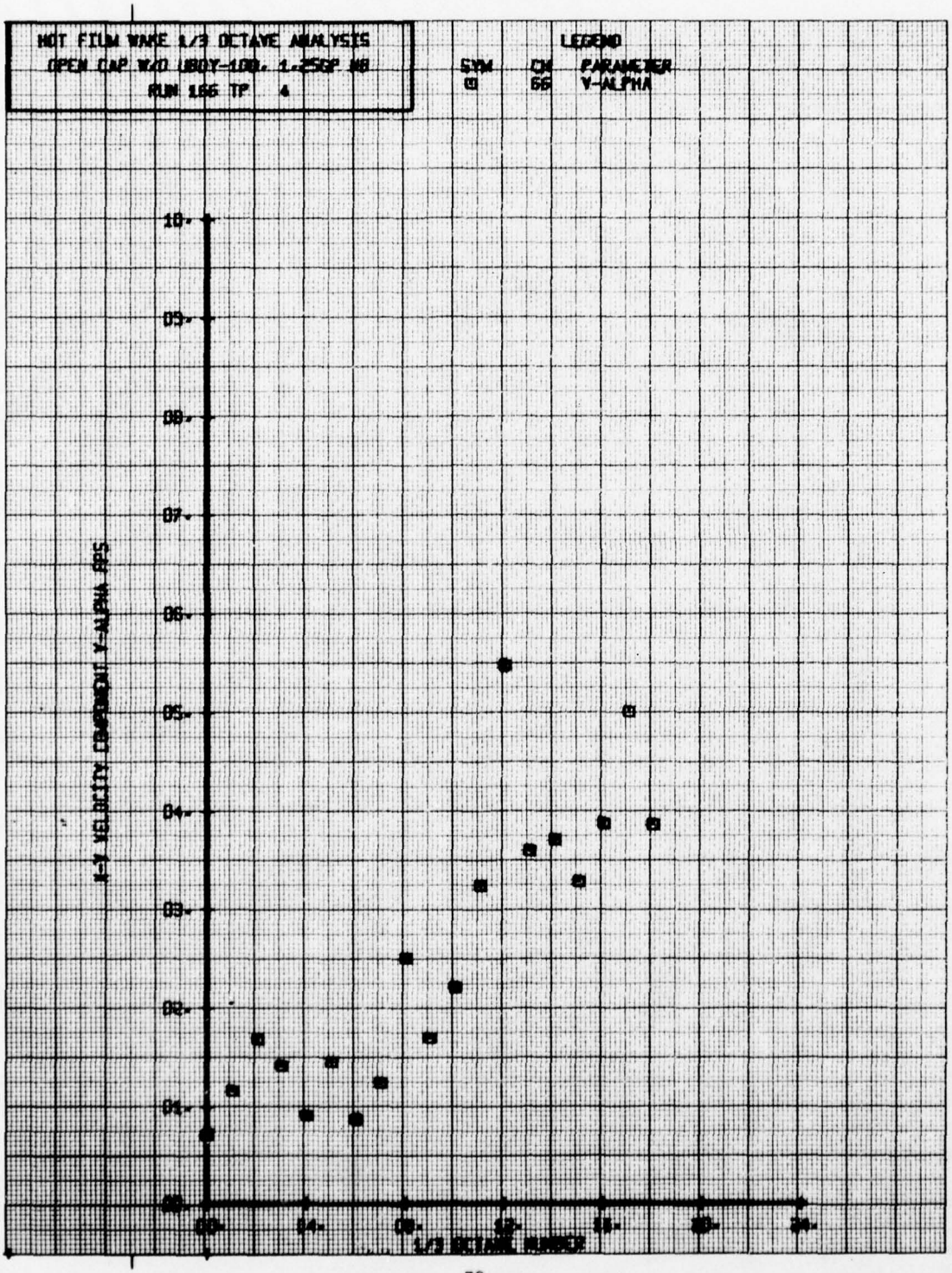

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O HMDY-100. 1.25GP NB
RUN 166 TP 3
LEGEND
SYM CH PARAMETER
BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER
00.
04.
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12.
16.
20.
24.

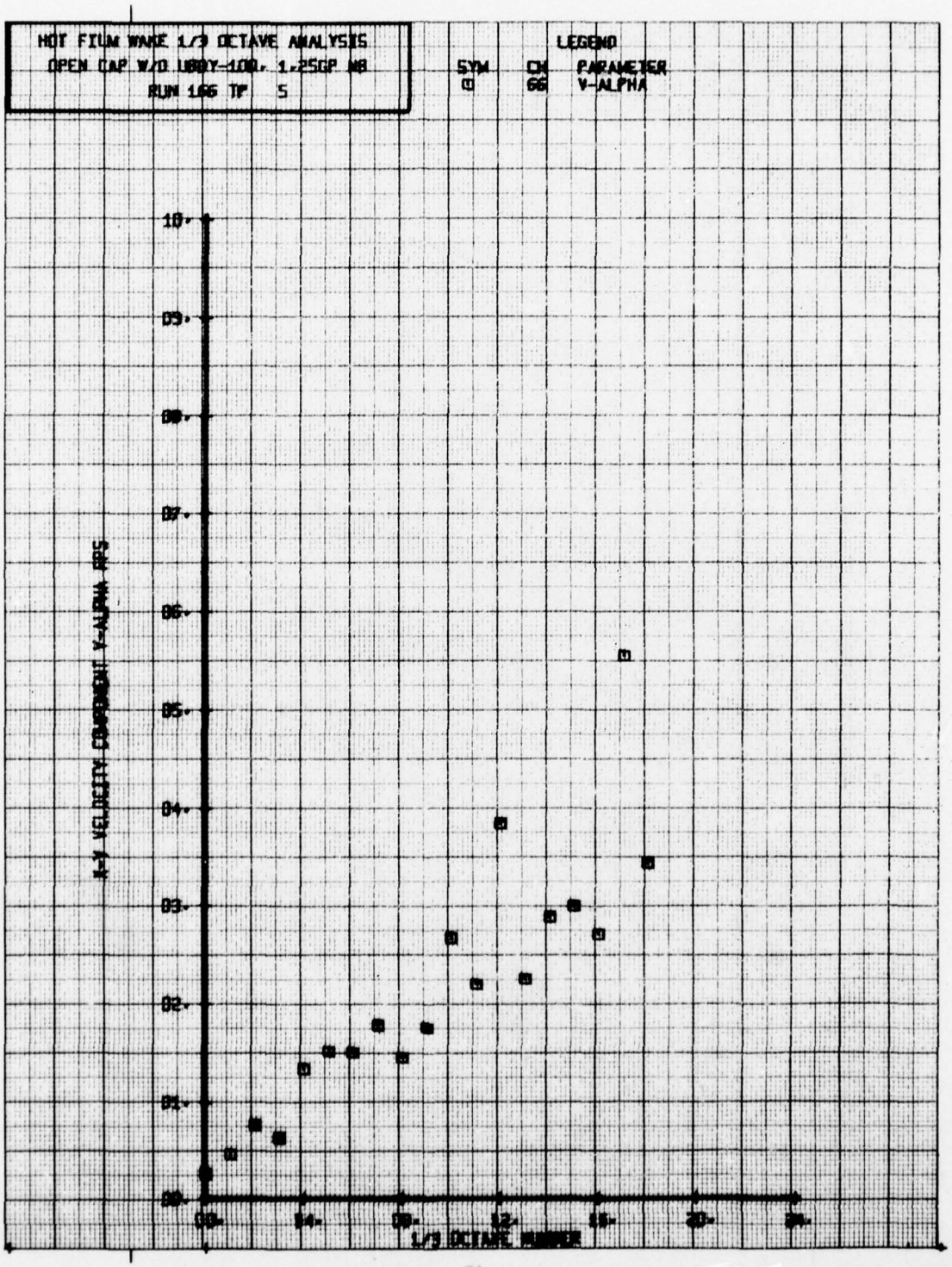

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY-100- 1-25GP NB
RUN 186 TP 4
LEGEND
SYM CH PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
10
09
08
07
06
05
04
03
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00
1/3 OCTAVE NUMBER

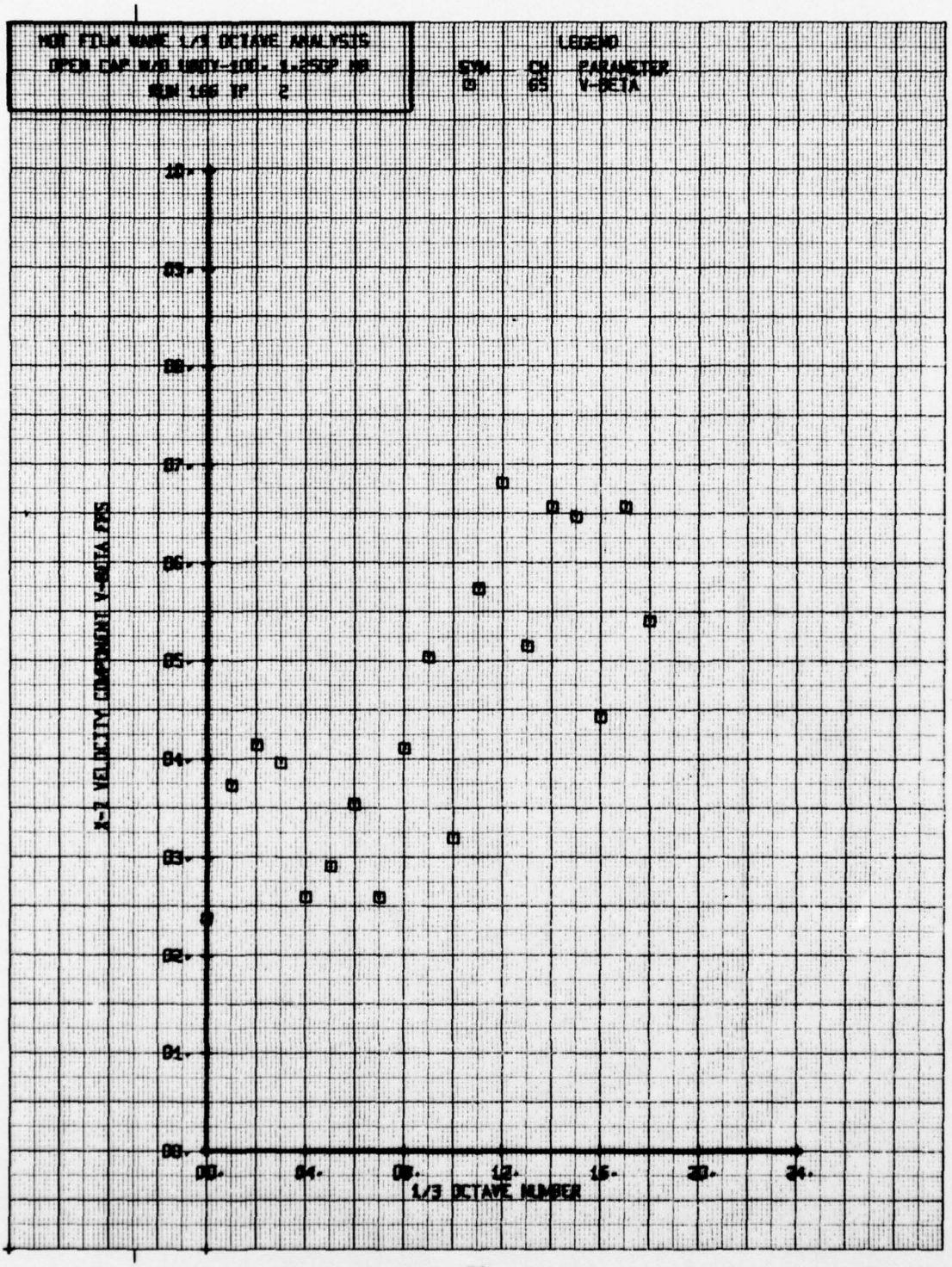

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBODY-100- 1.25GP NB
RUN 166 IP 5
LEGEND
SYM CH PARAMETER
65 BETA
10.
09.
08.
07.
06.
05.
04.
03.
02.
01.
00.
LATERAL FLOW ANGLE, BETA - DEGREES
00.
04.
08.
12.
16.
20.
24.
1/3 OCTAVE NUMBER

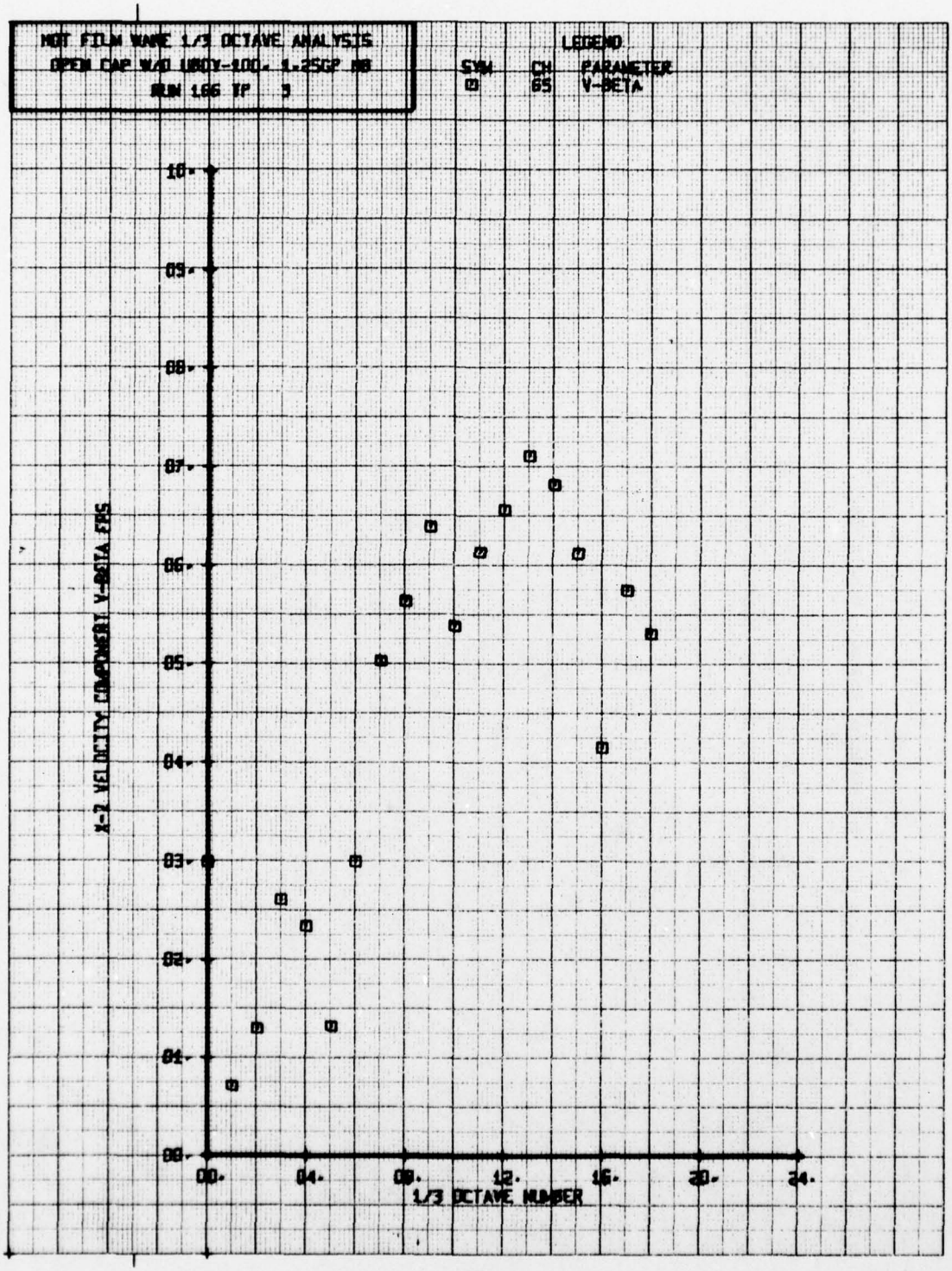

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBODY-100. 1.250F AB
RUN 166 TP 2
LEGEND
SYM CH PARAMETER
0 66 V-ALPHA
10.
09.
08.
07.
06.
05.
04.
03.
02.
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00.
X-Y VELOCITY COMPONENT V-ALPHA FPS
00.
04.
08.
12.
16.
20.
24.
1/3 OCTAVE NUMBER

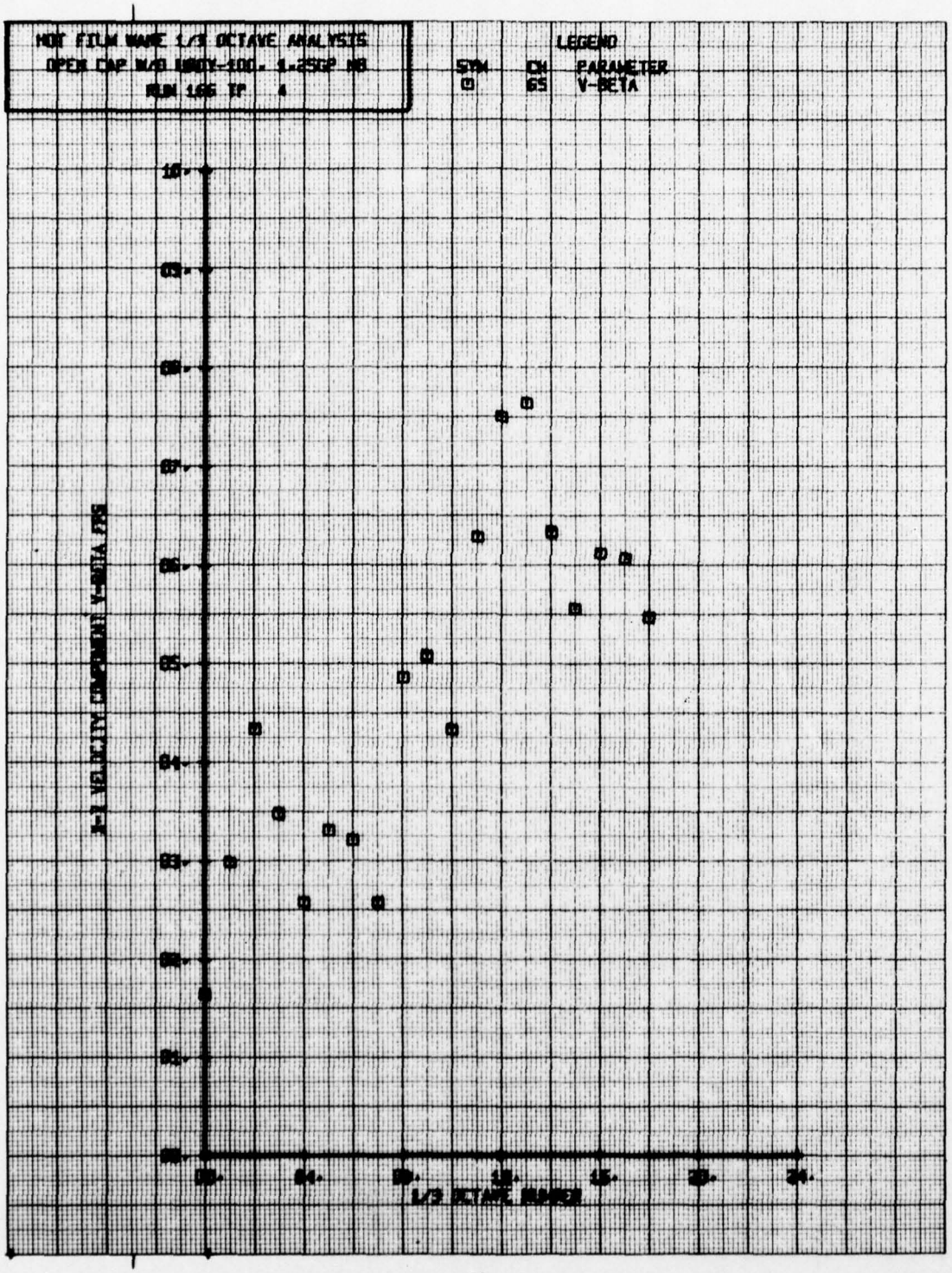

HOT FILM WAVE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY-100. 1.25GP NR
RUN 166 TP 3
LEGEND
SYM CH PARAMETER
66 V-ALPHA
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X-V VELOCITY COMPONENT V-ALPHA FPS
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16.
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24.
1/3 OCTAVE NUMBER

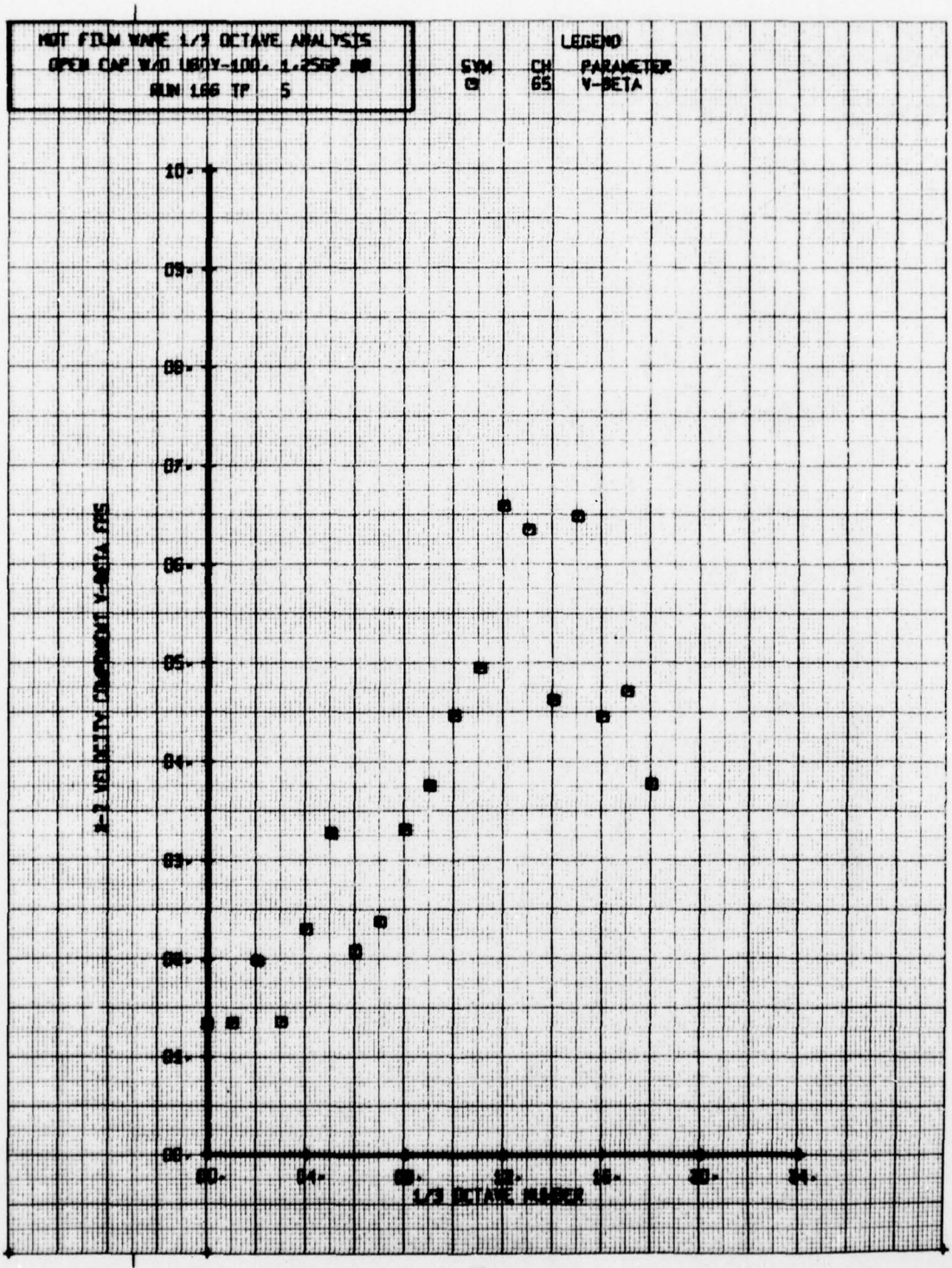

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O BODY-100. 1.25GP 00
RUN 166 TP 4
LEGEND
SYM CH PARAMETER
66 V-ALPHA
10.
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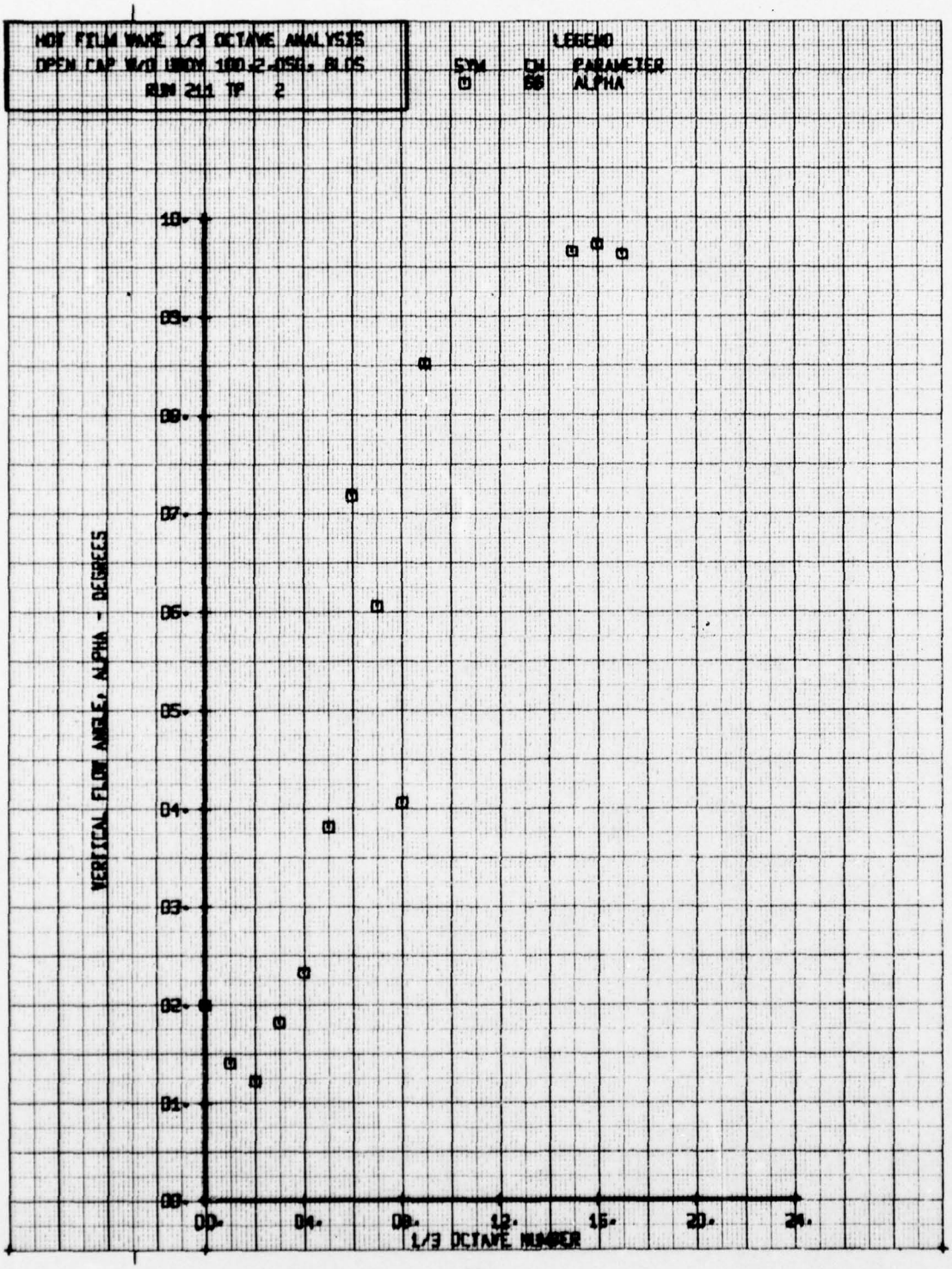

HOT FIUM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBRY-100, 1.25GP N8
RUN 166 TP 5
LEGEND
SYM CH PARAMETER
66 V-ALPHA
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1/3 OCTAVE

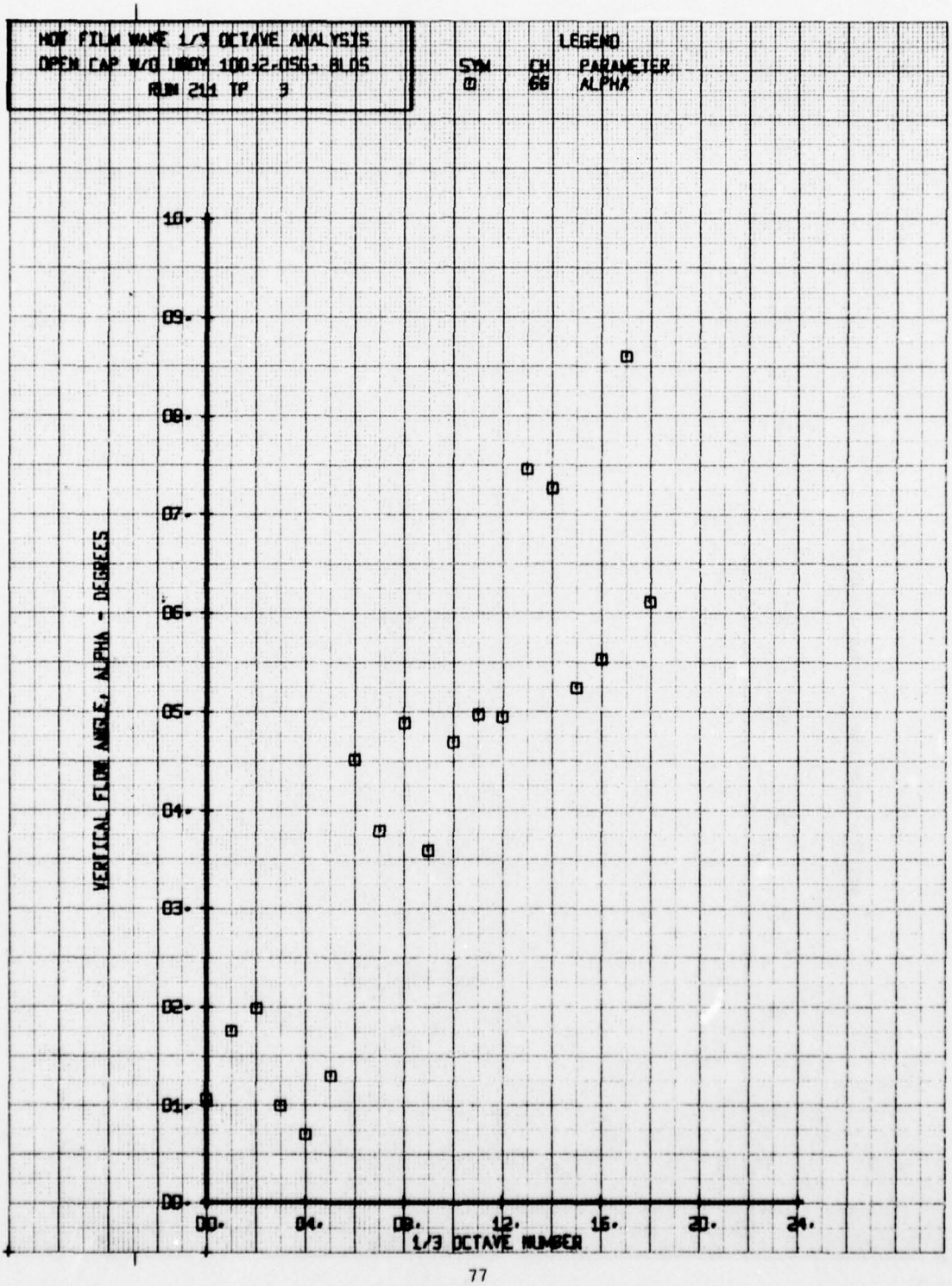

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O VARY-100. 1.25DP NR
RUN 166 IP 2
LEGEND
SYM CH PARAMETER
65 V-BETA
X-Z VELOCITY COMPONENT V-BETA SQS
1/3 OCTAVE NUMBER

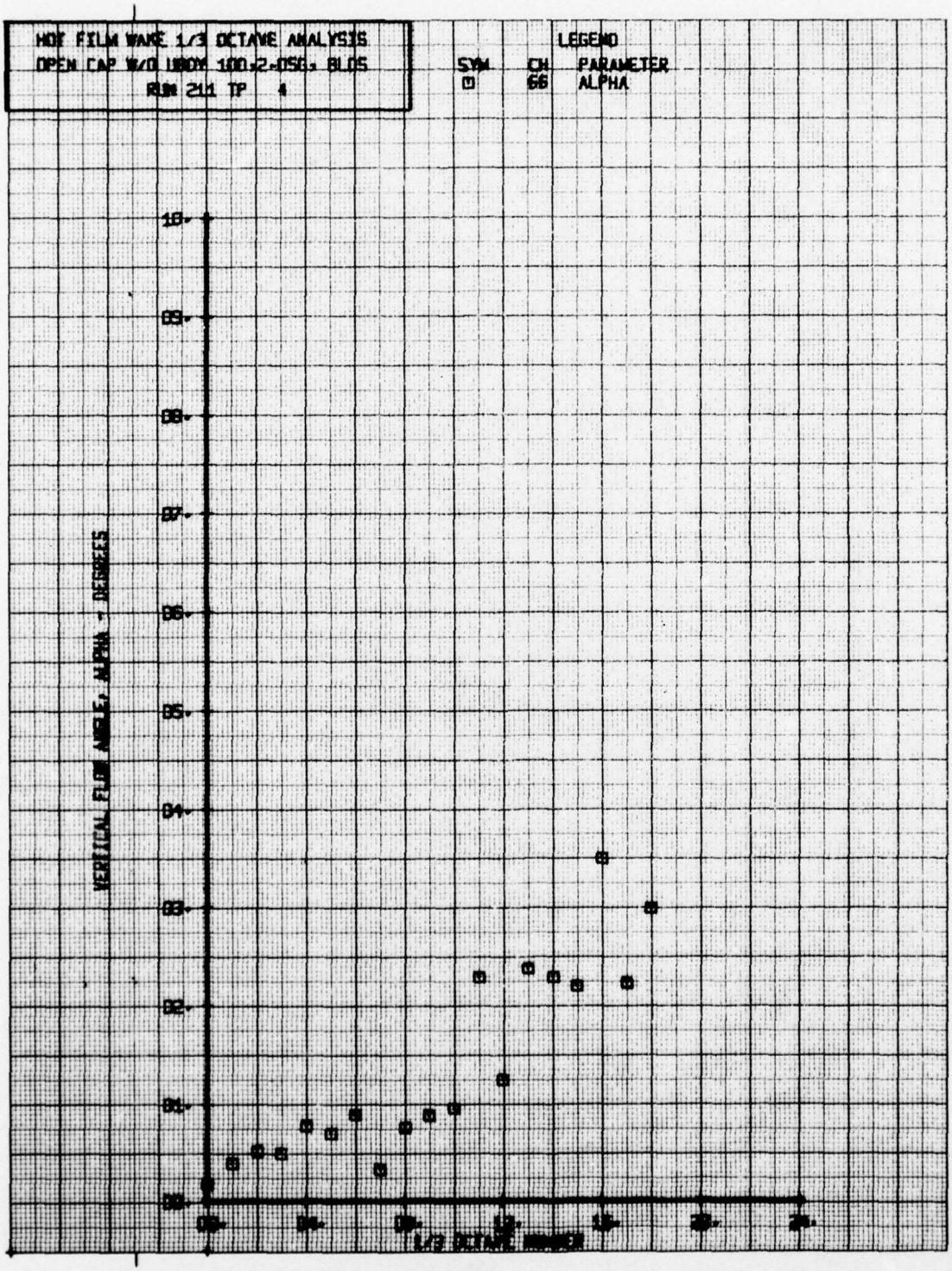

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY-100. 1.25GP RB
RUN 166 TP 3
LEGEND
SYM CH PARAMETER
65 V-BETA
X-Z VELOCITY COMPONENT V-BETA FPS
1/3 OCTAVE NUMBER
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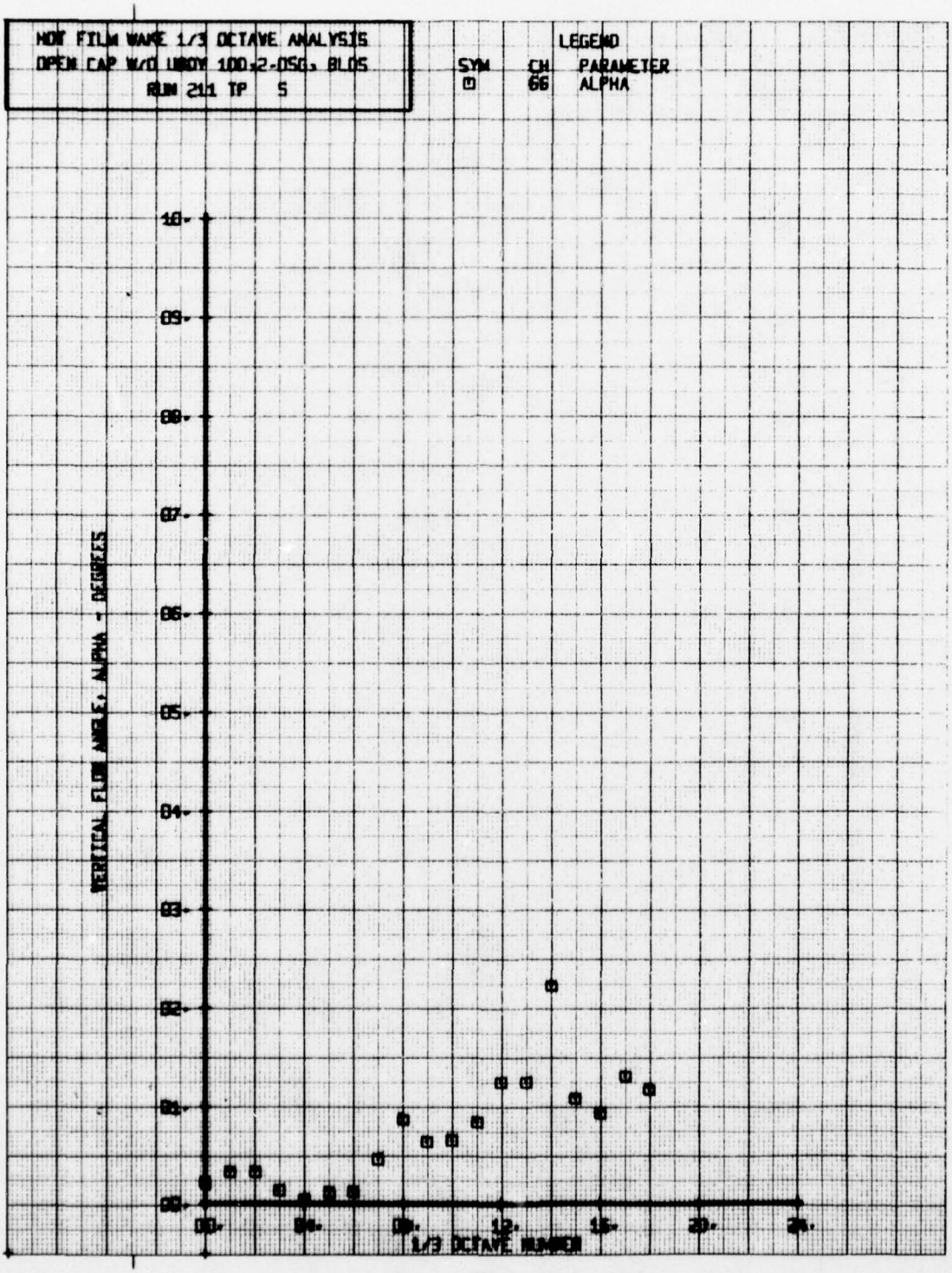

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP WAG KBDY-100. 1.25GP NB
RUN 166 TP 4
LEGEND
SYM CH PARAMETER
0 65 V-BETA
16.
12.
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-12.
-16.
1/3 VELOCITY COMPONENT V-BETA FPS
1/3 OCTAVE BANDS

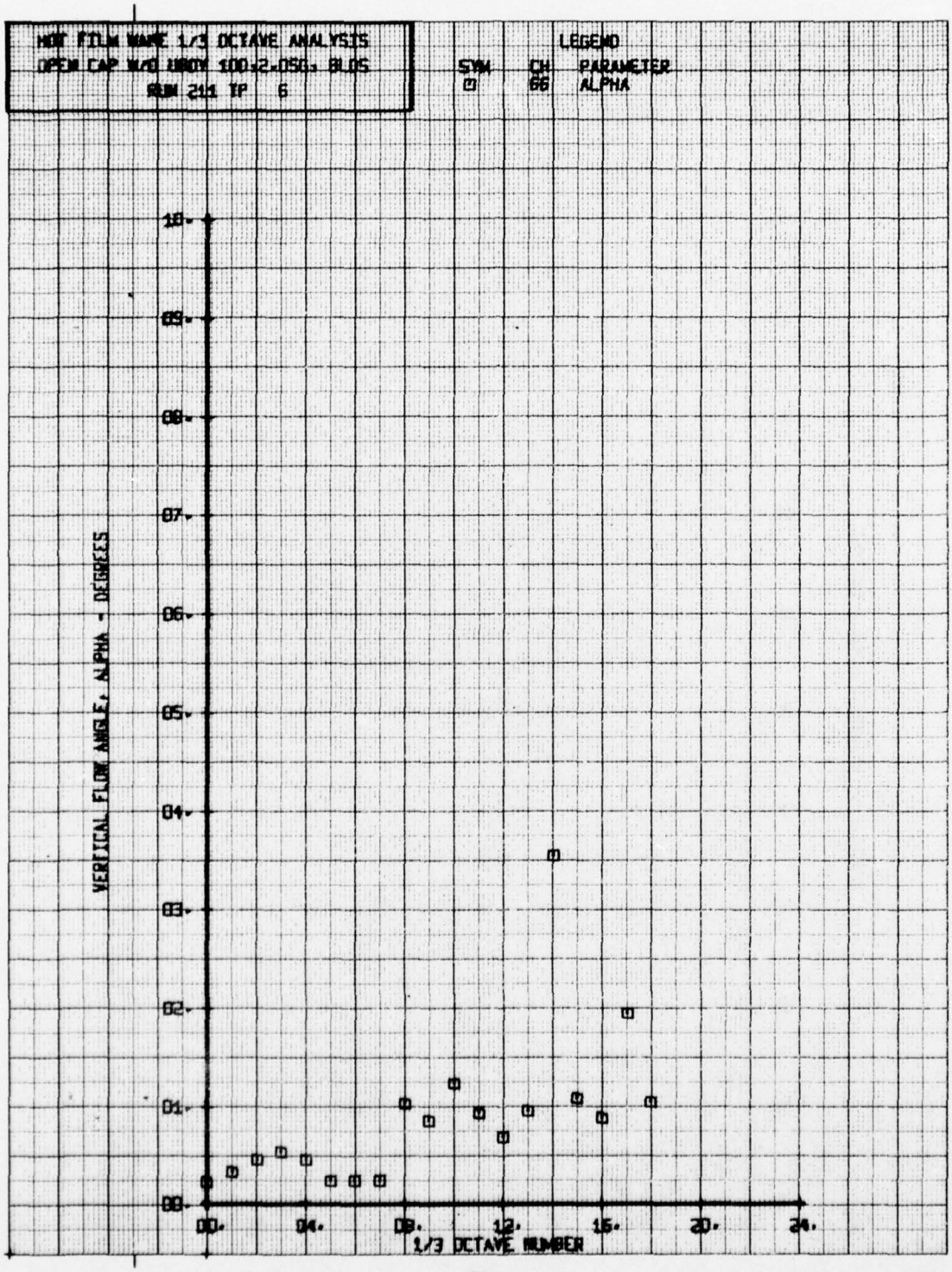

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY-100. 1.25KP RR
RUN 186 TP 5
LEGEND
SYM CH PARAMETER
65 V-BETA
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1/3 OCTAVE NUMBER

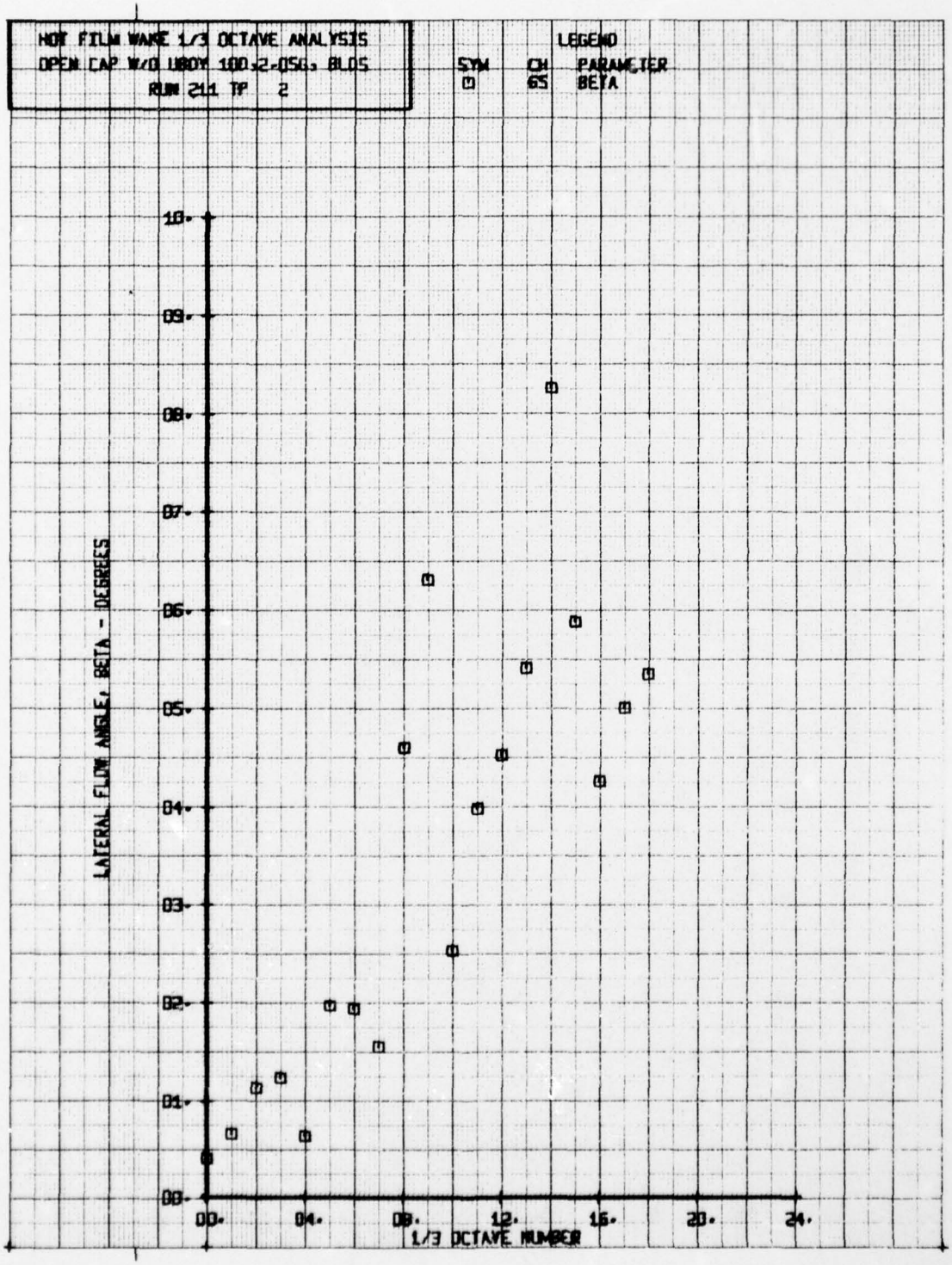

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O LNOM 100.2-DEG. BLOS
RUN 211 TP 2
LEGEND
SYM CH PARAMETER
CH 88 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

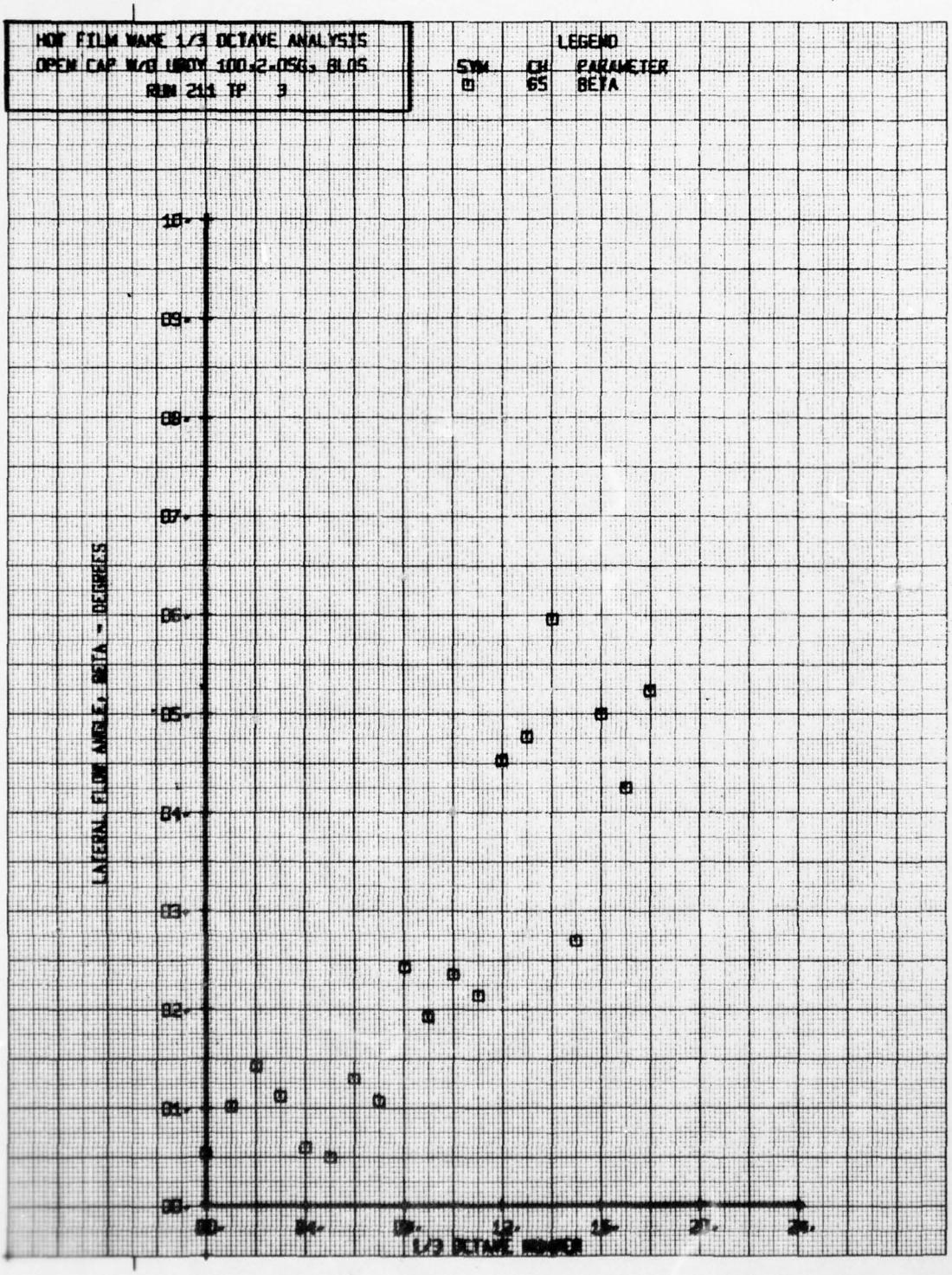

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBODY 100:2.05G, BLOS
RUN 211 TP 3
LEGEND
SYM CH PARAMETER
66 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER
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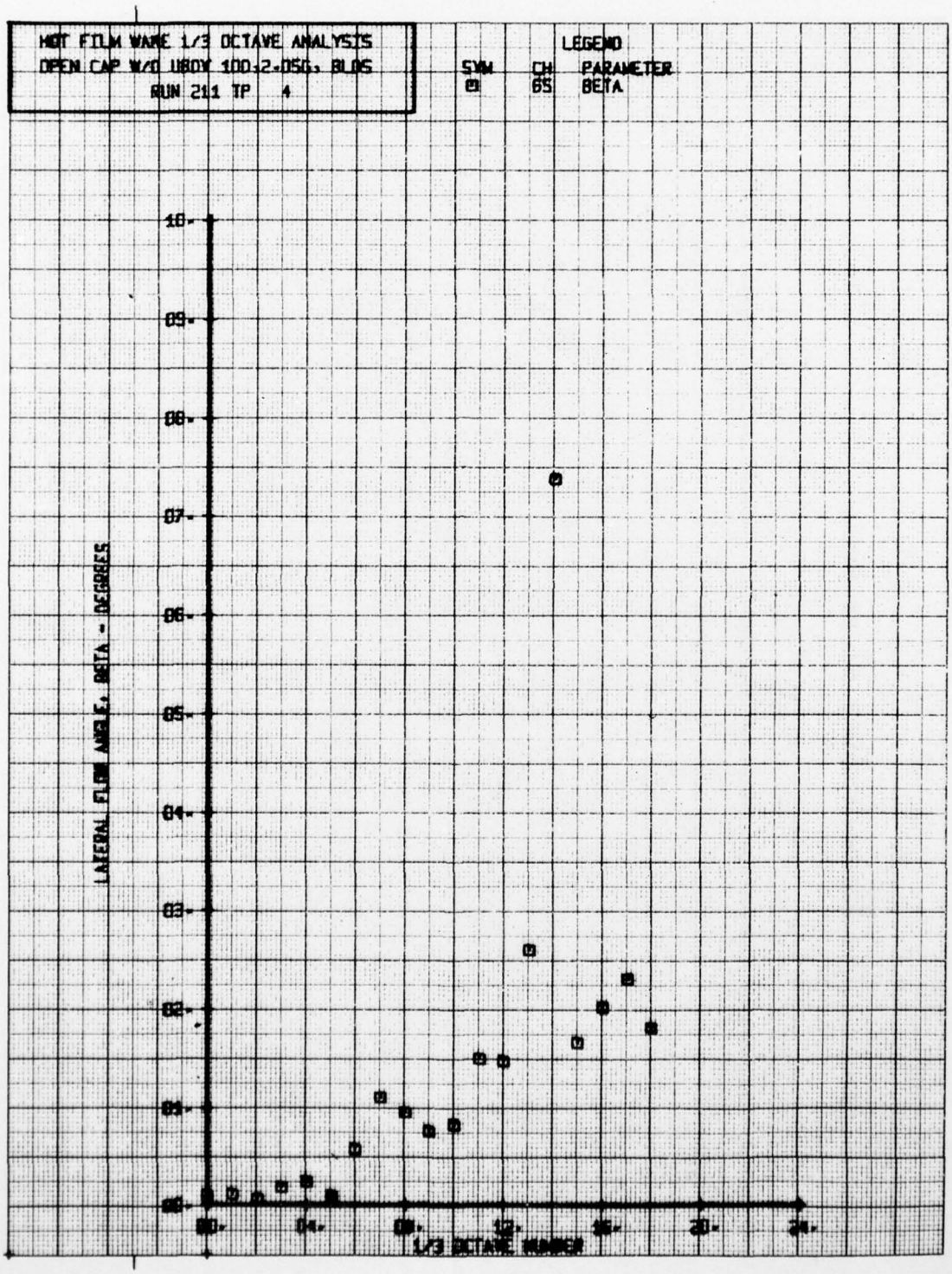

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O HBOM 100.2-DSG. BLDS
RUN 211 TP 4
LEGEND
SYM CH PARAMETER
66 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE

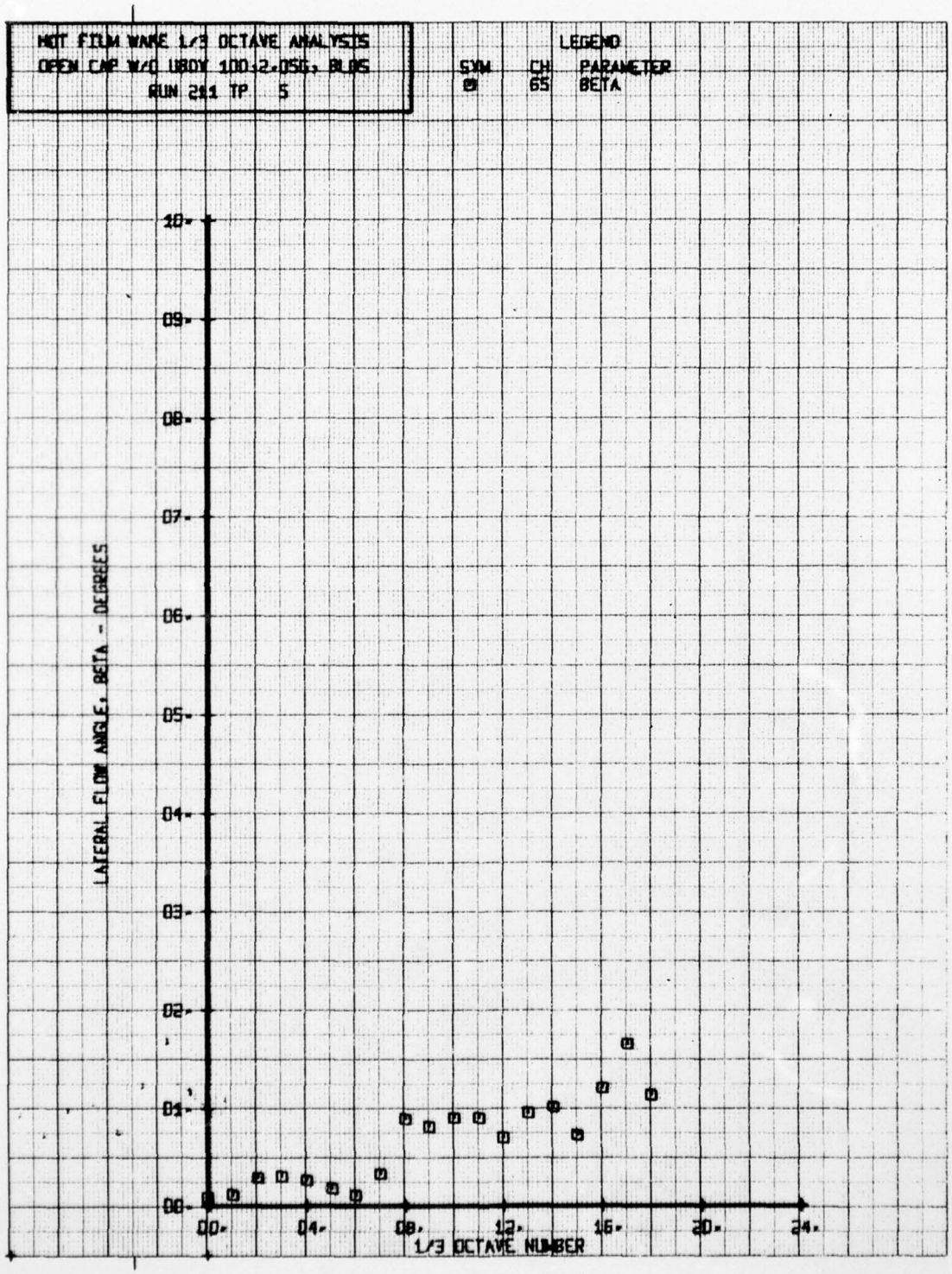

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UMBOY 100-2-DSG, BLDS
RUN 211 TP 5
LEGEND
SYM CH PARAMETER
66 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

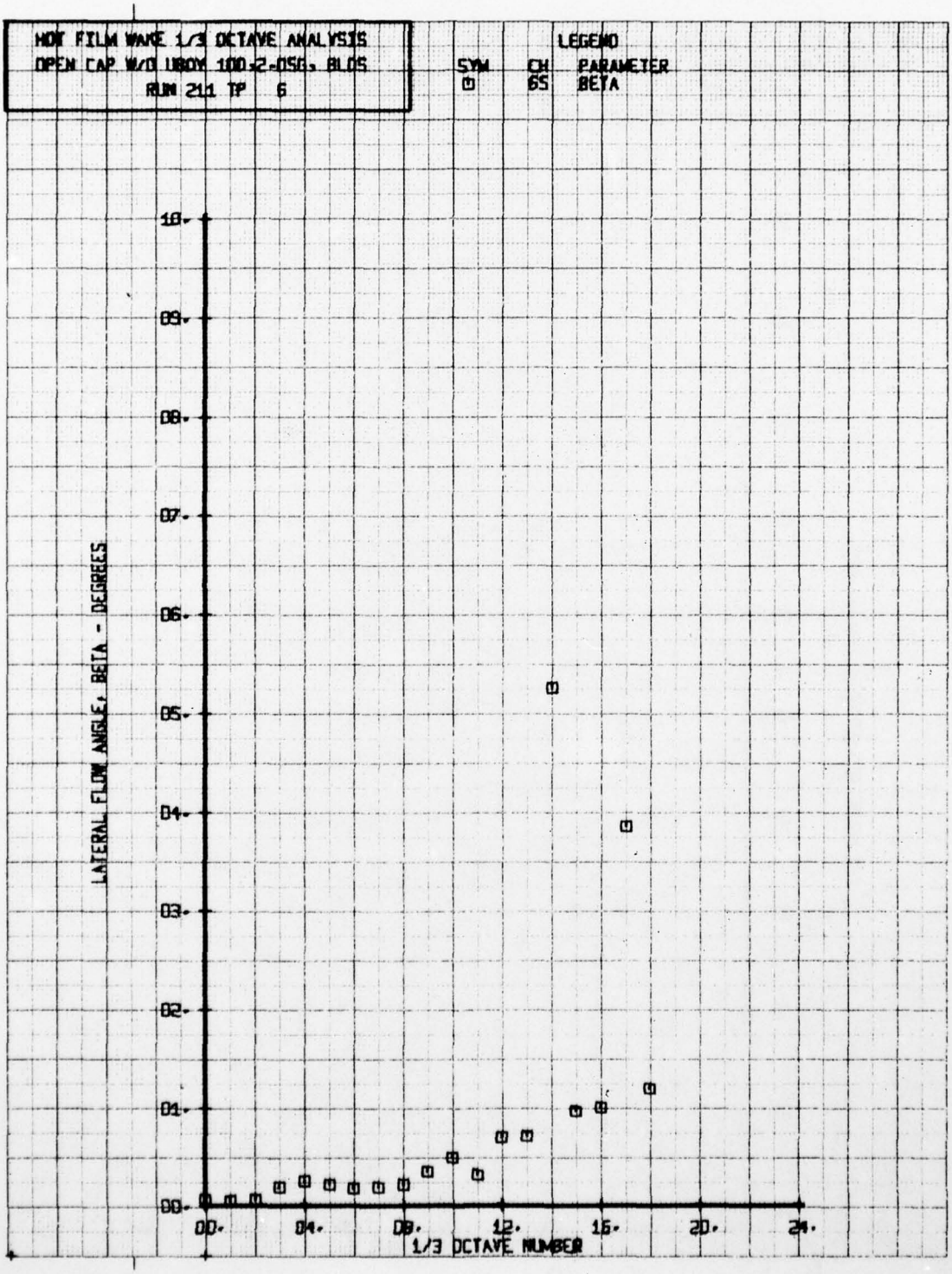

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O HBOY 100.2.050. 8L05
RUN 211 TP 6
LEGEND
SYM CH PARAMETER
66 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

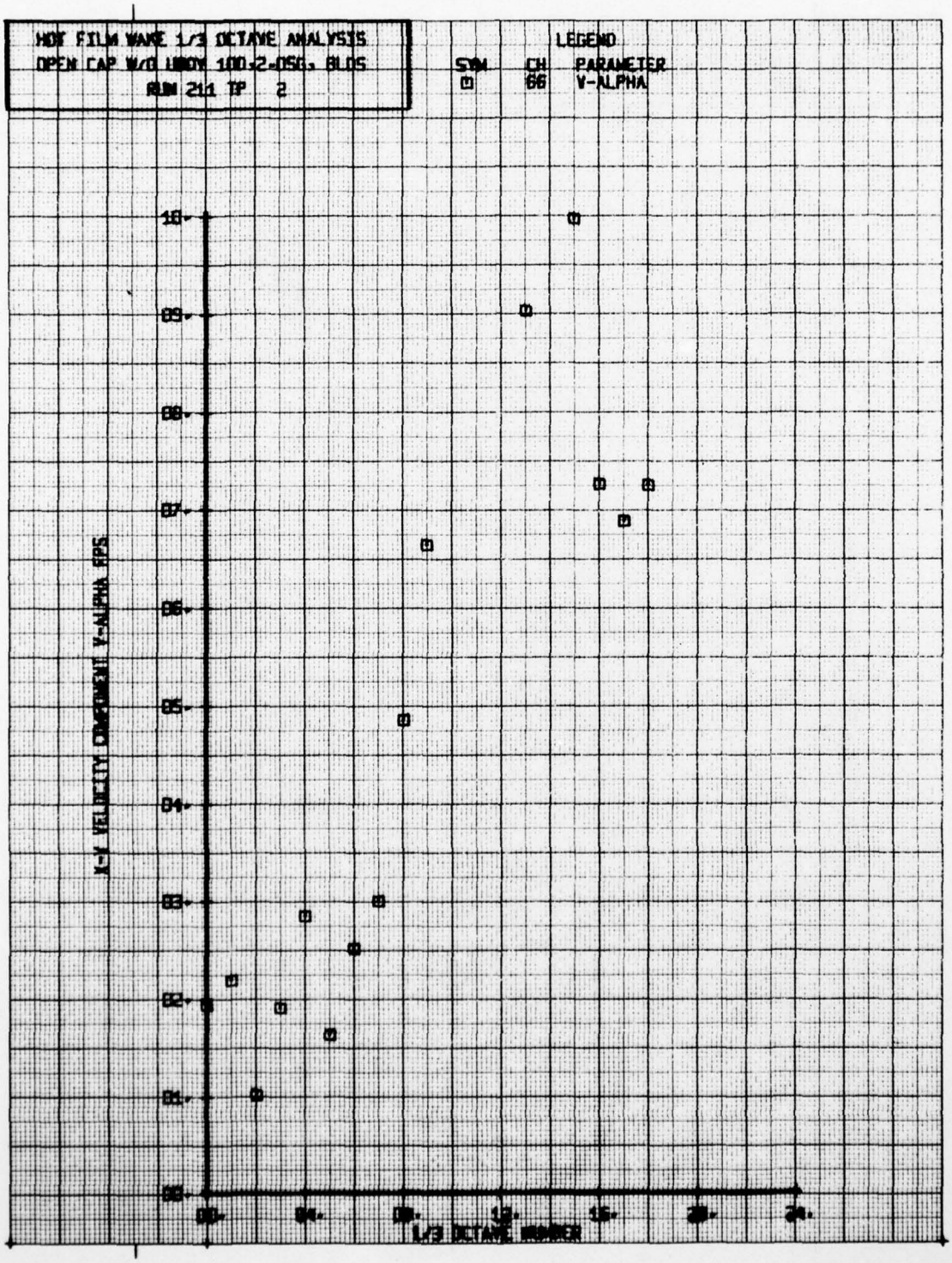

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY 100-2-05G, BL05
RUN 211 TP 2
LEGEND
SYM CH PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER
10.
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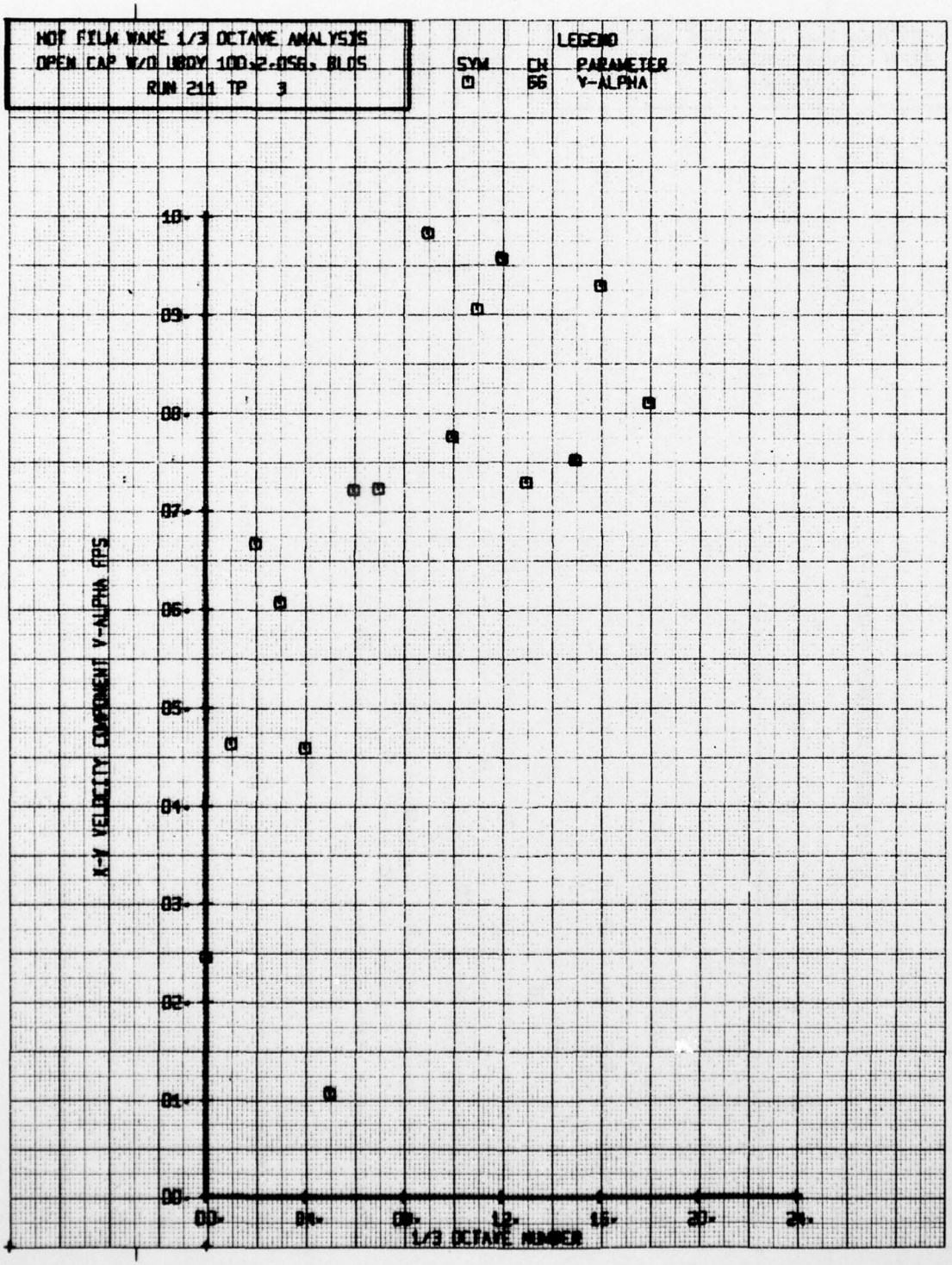

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBODY 100.2-DEG. BLDS
RUN 211 TP 3
LEGEND
SYM CH PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER

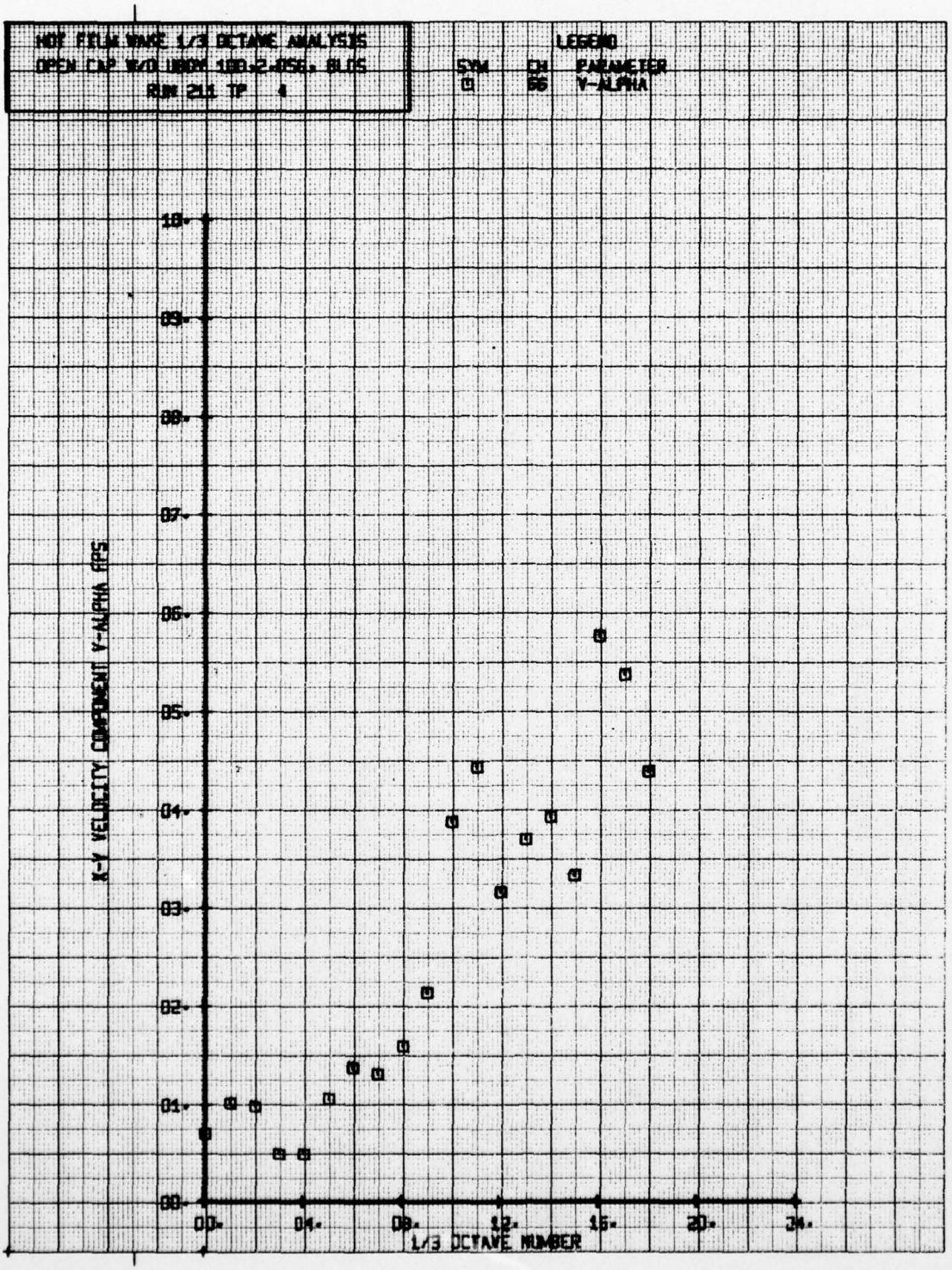

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY 100.2.DSG. BLDS
RUN 211 TP 4
LEGEND
SYM CH PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER

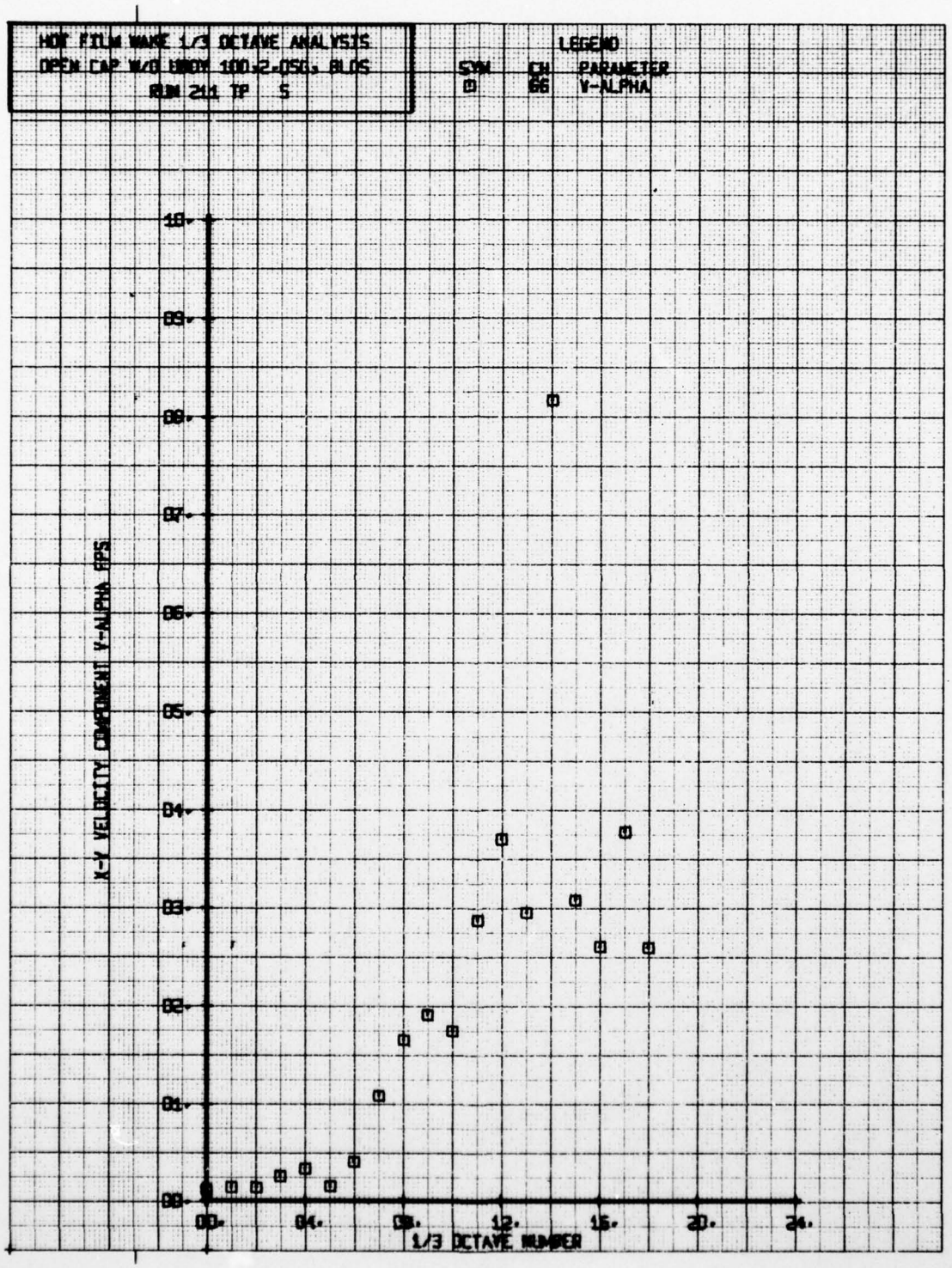

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBDY 100:2.056, BLDS
RUN 211 TP 5
LEGEND
SYM CH PARAMETER
65 BETA
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LATERAL FLOW ANGLE, BETA - DEGREES
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1/3 OCTAVE NUMBER

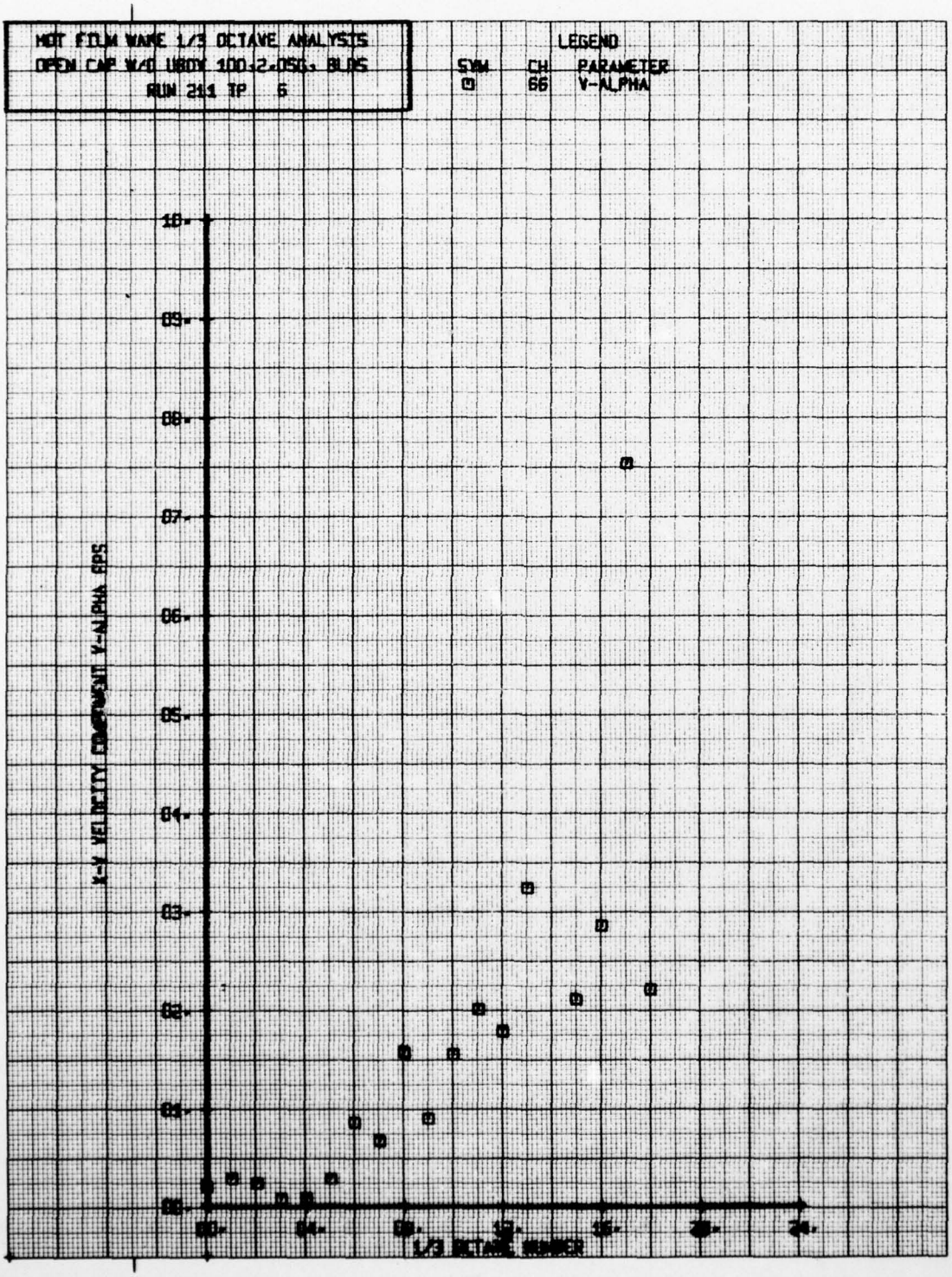

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UROV 100-2-056, BL05
RUN 211 TP 6
LEGEND
SYM CH PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER
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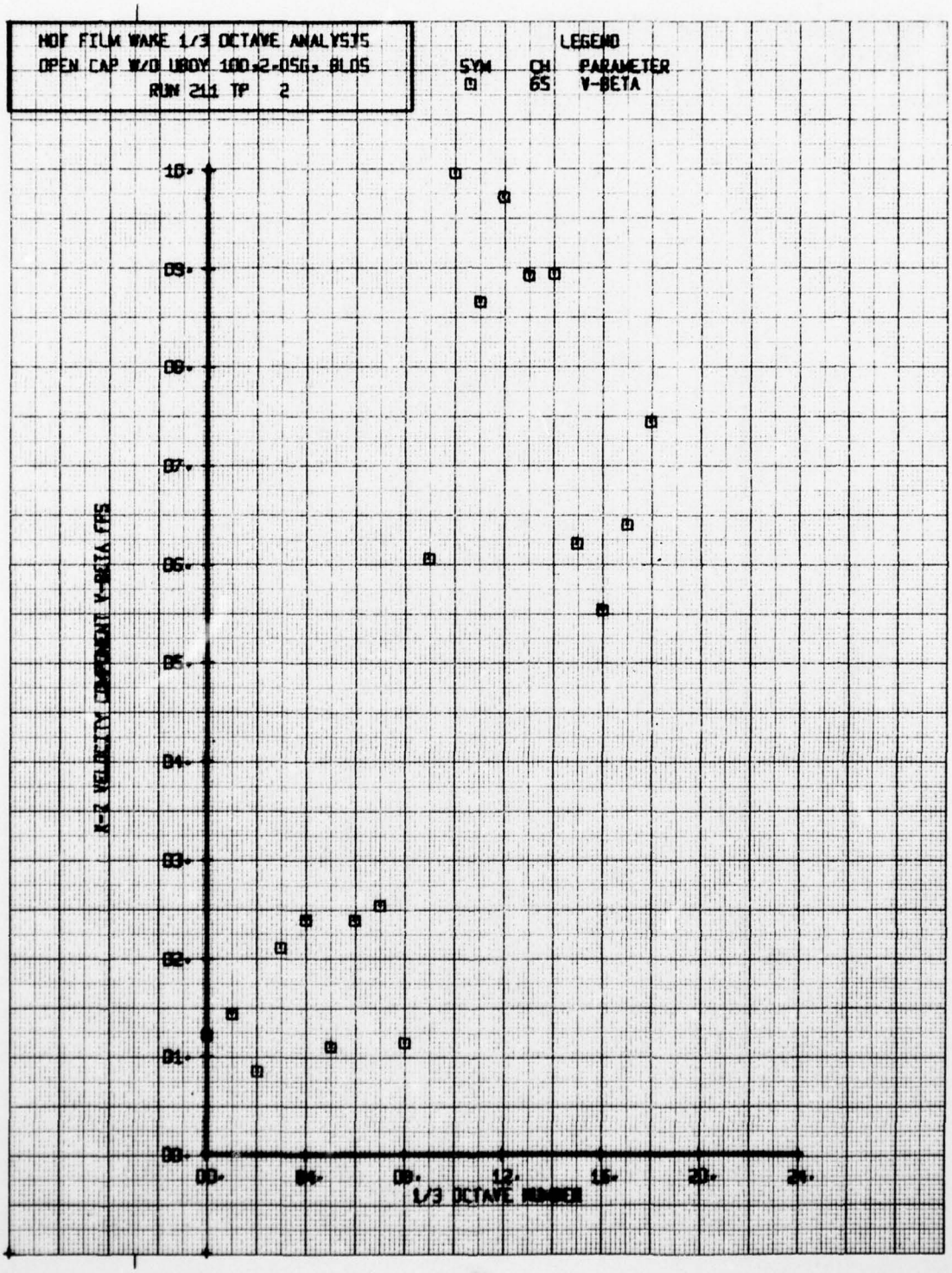

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UNDY 100-2-056, BLDS
RUN 211 TP 2
LEGEND
SYM CH PARAMETER
66 V-ALPHA
10
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X-Y VELOCITY COMPONENT V-ALPHA FPS
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20
24
1/3 OCTAVE NUMBER

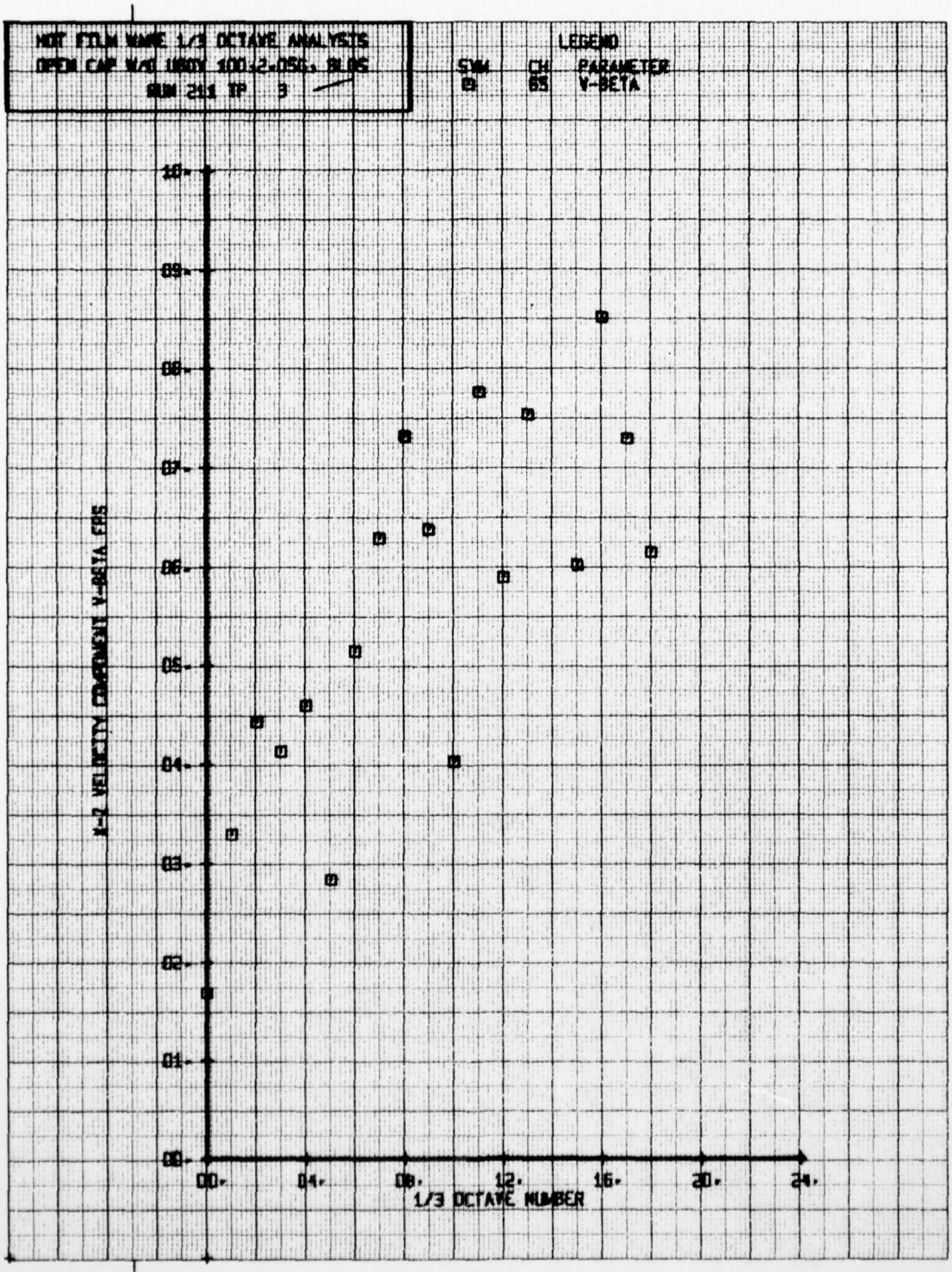

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O HBDY 100,2.05E, BLDS
RUN 211 TP 3
LEGEND
SYM CH PARAMETER
56 V-ALPHA
10.
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X-V VELOCITY COMPONENT V-ALPHA FPS
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1/3 OCTAVE NUMBER

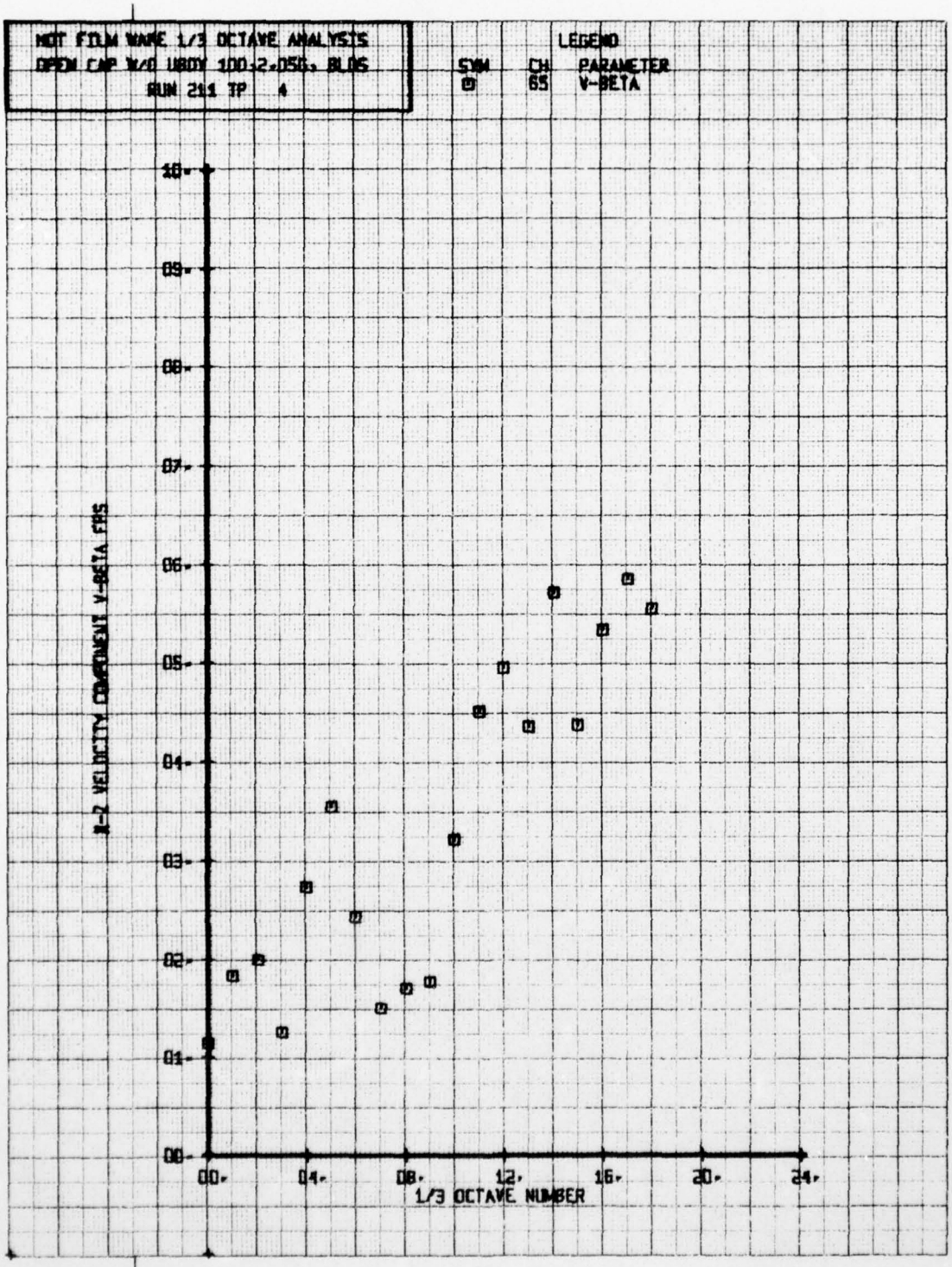

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O INSRT 180.2.856. BLDS
RUN 211 TP 4
LEGEND
SYM CH PARAMETER
56 V-ALPHA
X-V VELOCITY COMPONENT V-ALPHA FPS
1/3 OCTAVE NUMBER

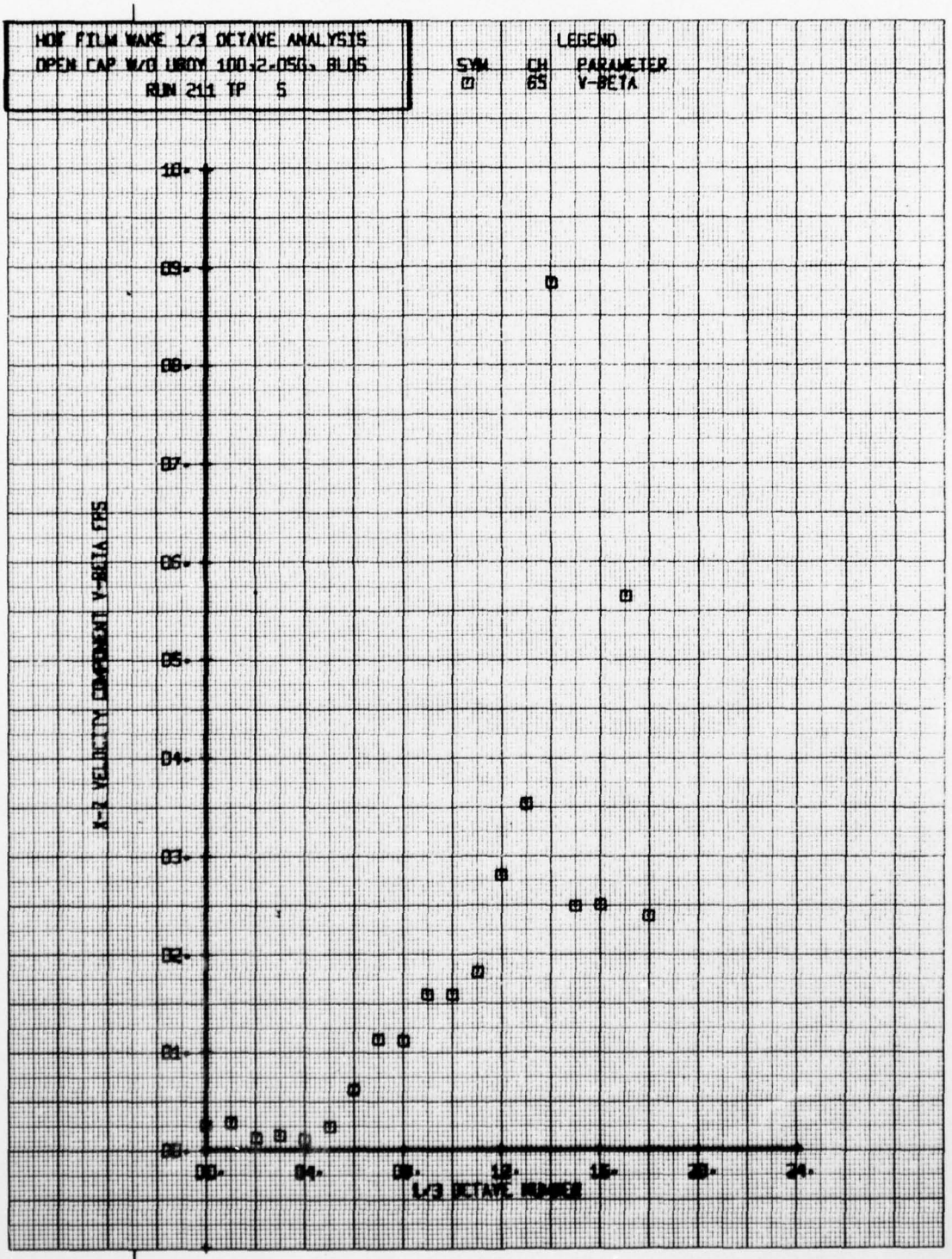

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UNDY 100,2.05G, BLOS
RUN 211 TP 5
LEGEND
SYM CH PARAMETER
66 V-ALPHA
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X-Y VELOCITY COMPONENT V-ALPHA FPS
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1/3 OCTAVE NUMBER

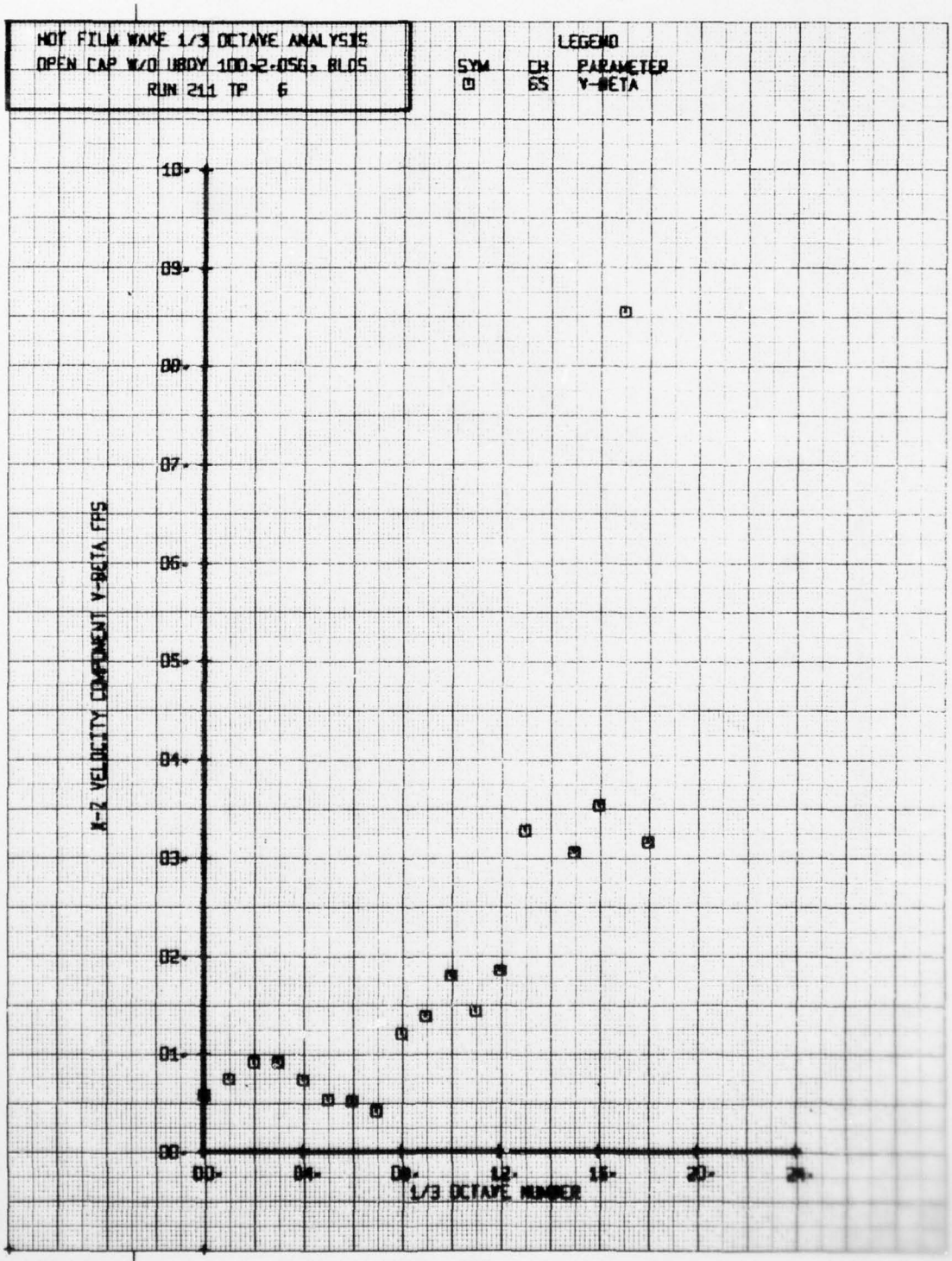

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY 100-2-050, BLDS
RUN 211 TP 6
LEGEND
SYM CH PARAMETER
66 V-ALPHA
10
09
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07
06
05
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08
12
16
20
24
1/3 OCTAVE NUMBER


HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY 100.2-05G. BLOS
RUN 211 TP 2
LEGEND
SYM CH PARAMETER
65 V-BETA
1.0
.9
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X-Z VELOCITY COMPONENT V-BETA FPS
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24
1/3 OCTAVE NUMBER


HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBDY 100.2-DEG. BLDS
RUN 211 TP 3
LEGEND
SYM CH PARAMETER
65 V-BETA
10.
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X-2 VELOCITY COMPONENT V-BETA FPS
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1/3 OCTAVE NUMBER

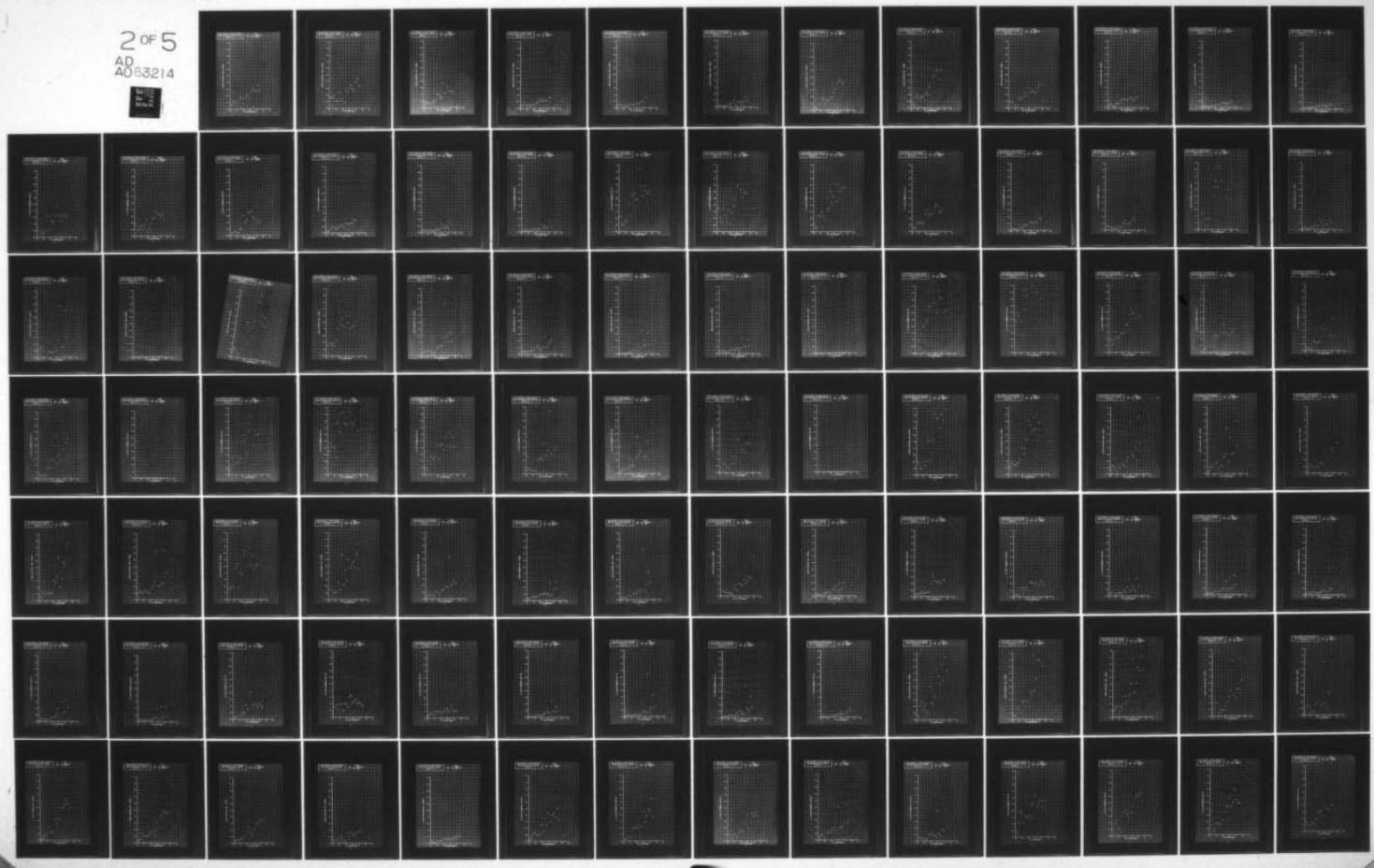

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY 100.2.05G, BL05
RUN 211 TP 4
LEGEND
SYM CH PARAMETER
65 V-BETA
10.
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1/3 OCTAVE NUMBER

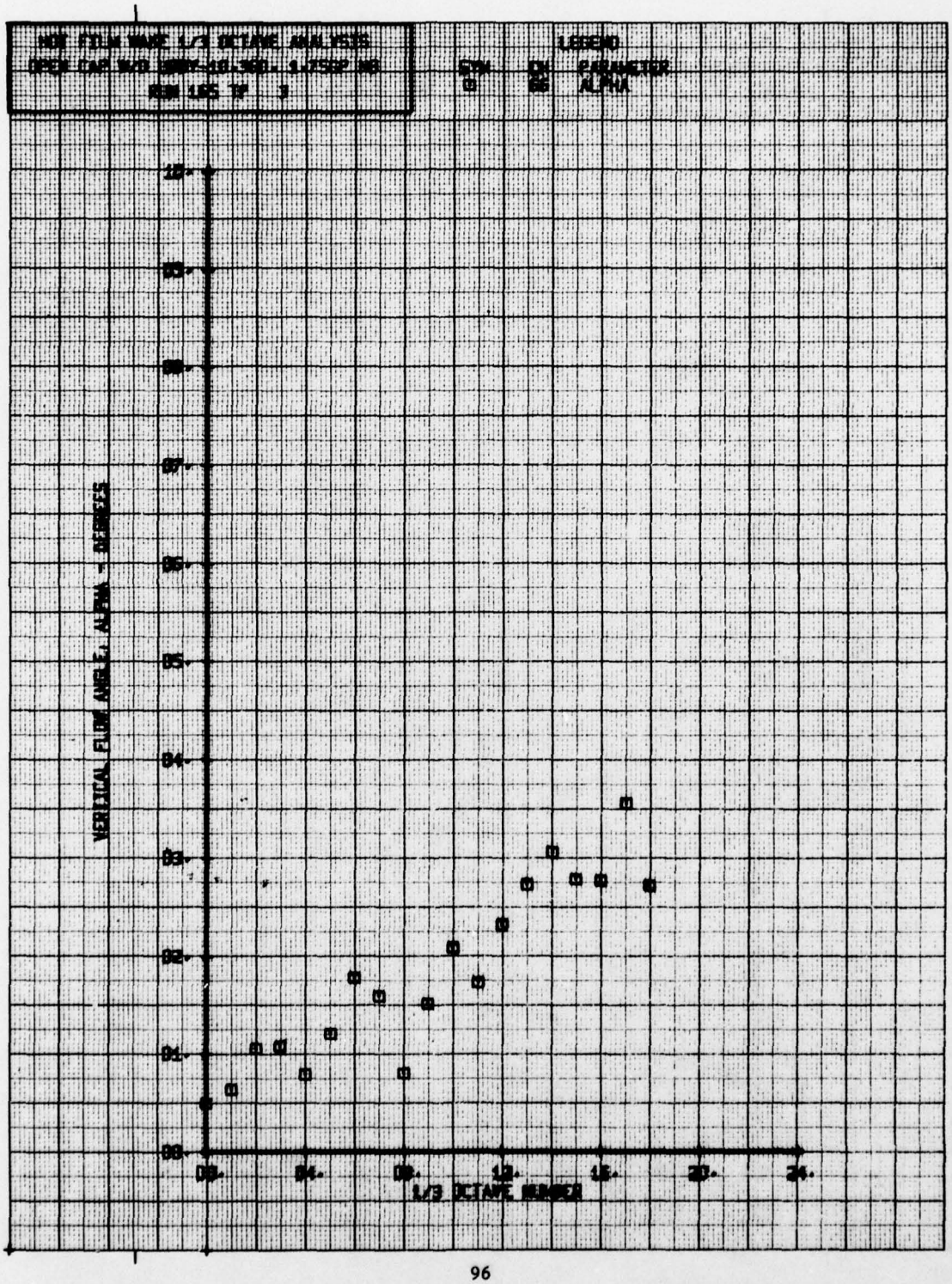

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBDY 100-2-050, BLDS
RUN 211 TP 5
LEGEND
SYM CH PARAMETER
65 V-BETA
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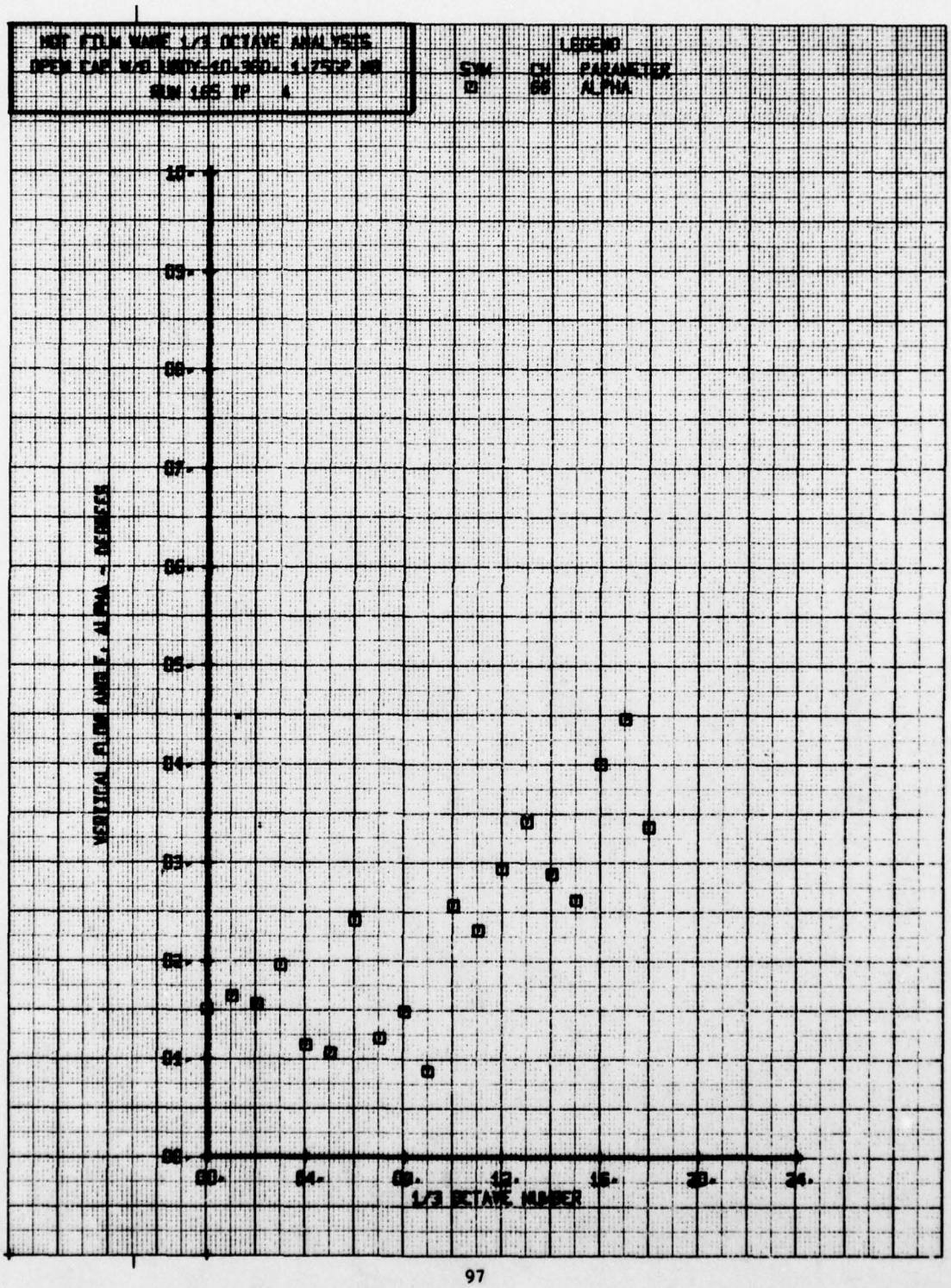

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O HBDY 100-2-056, BLDS
RUN 211 TP 6
LEGEND
SYM CH PARAMETER
65 V-BETA
10.
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00. 04. 08. 12. 16. 20. 24.
1/3 OCTAVE NUMBER
X-Z VELOCITY COMPONENT V-BETA FPS

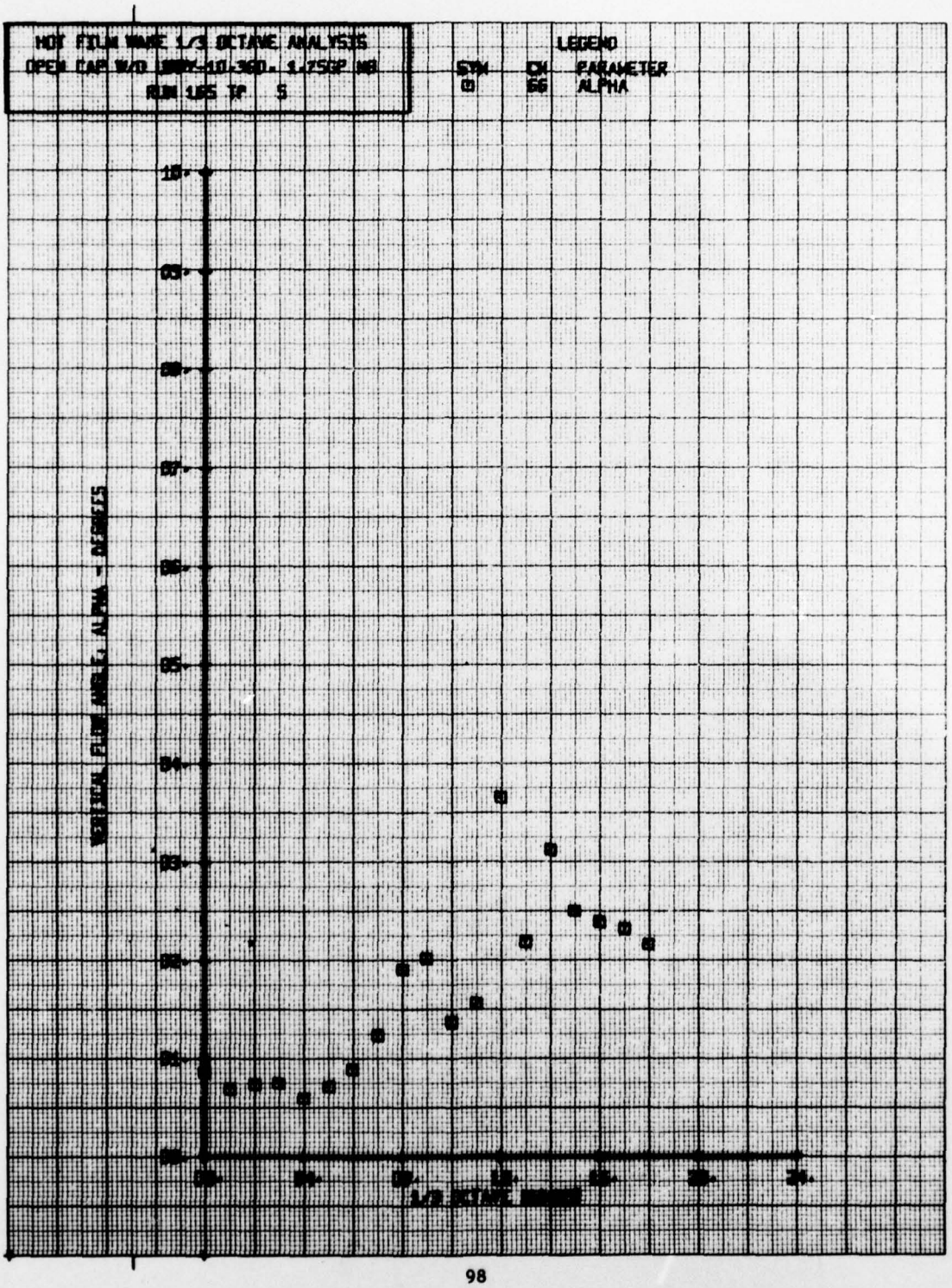
AD-A063 214 BOEING VERTOL CO PHILADELPHIA PA F/G 1/3
INTERACTIONAL AERODYNAMICS OF THE SINGLE ROTOR HELICOPTER CONFI--ETC(U)
SEP 78 P F SHERIDAN DAAJ02-77-C-0020
UNCLASSIFIED USARTL-TR-78-23D NL

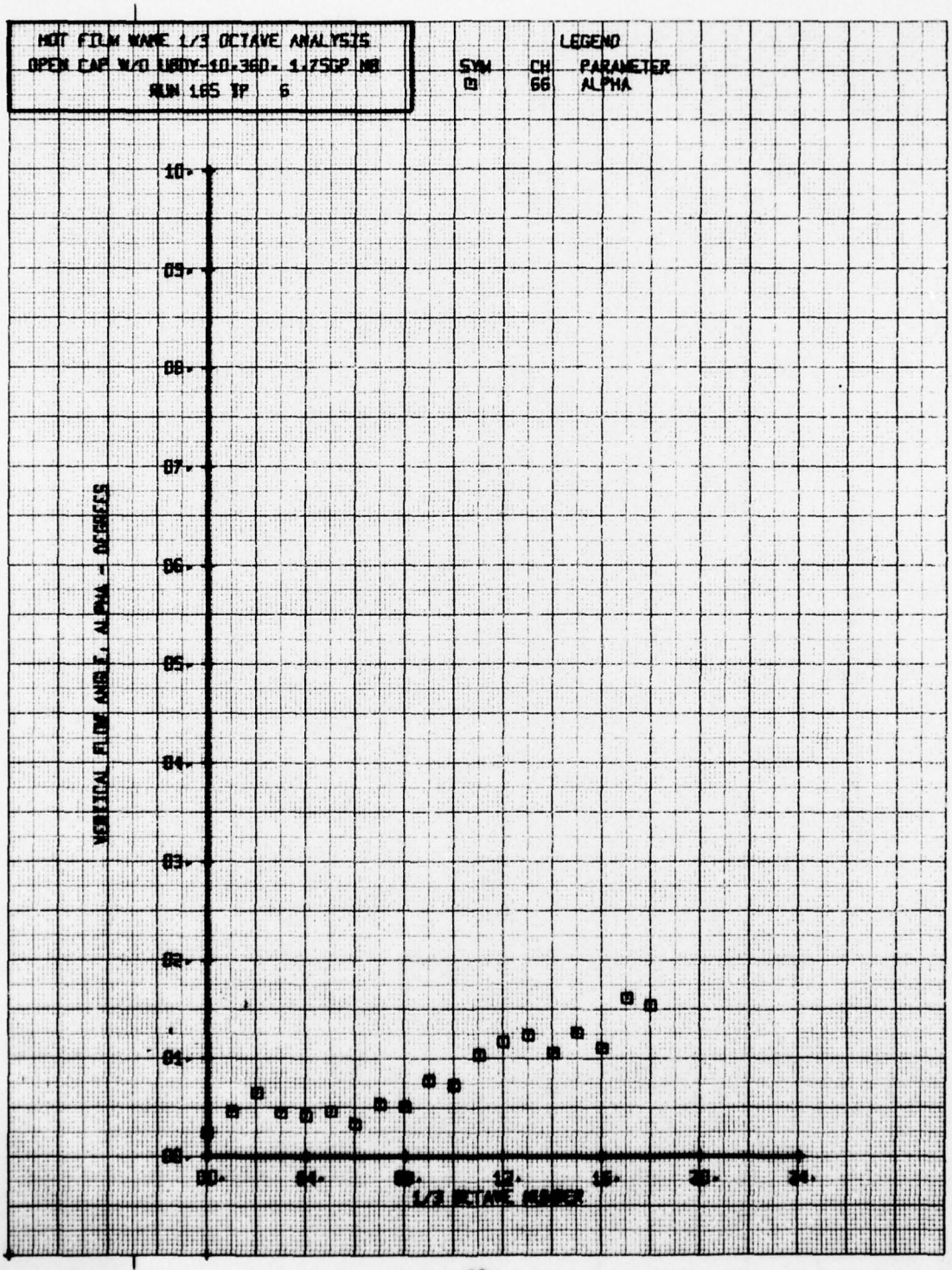
2 OF 5
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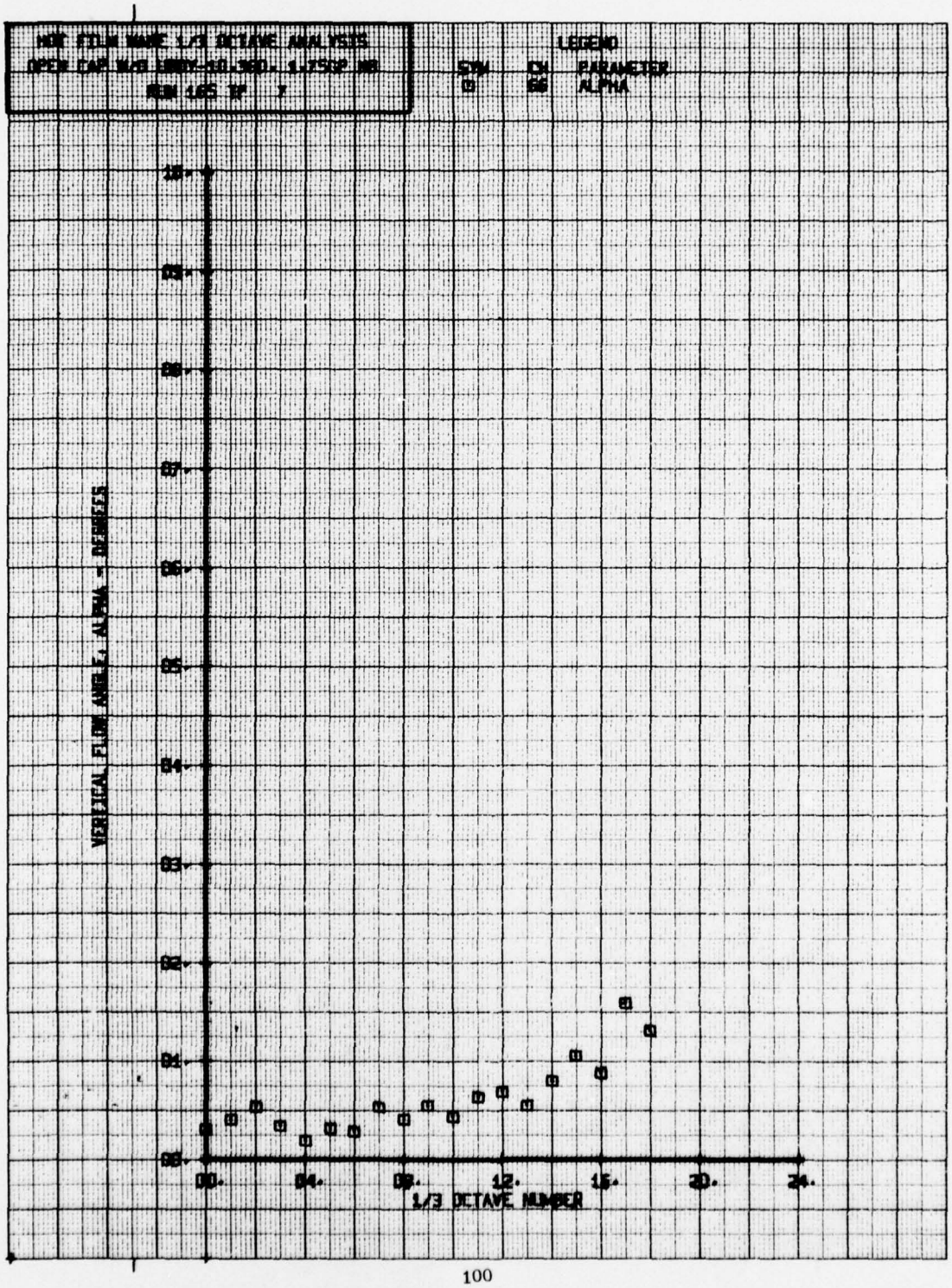


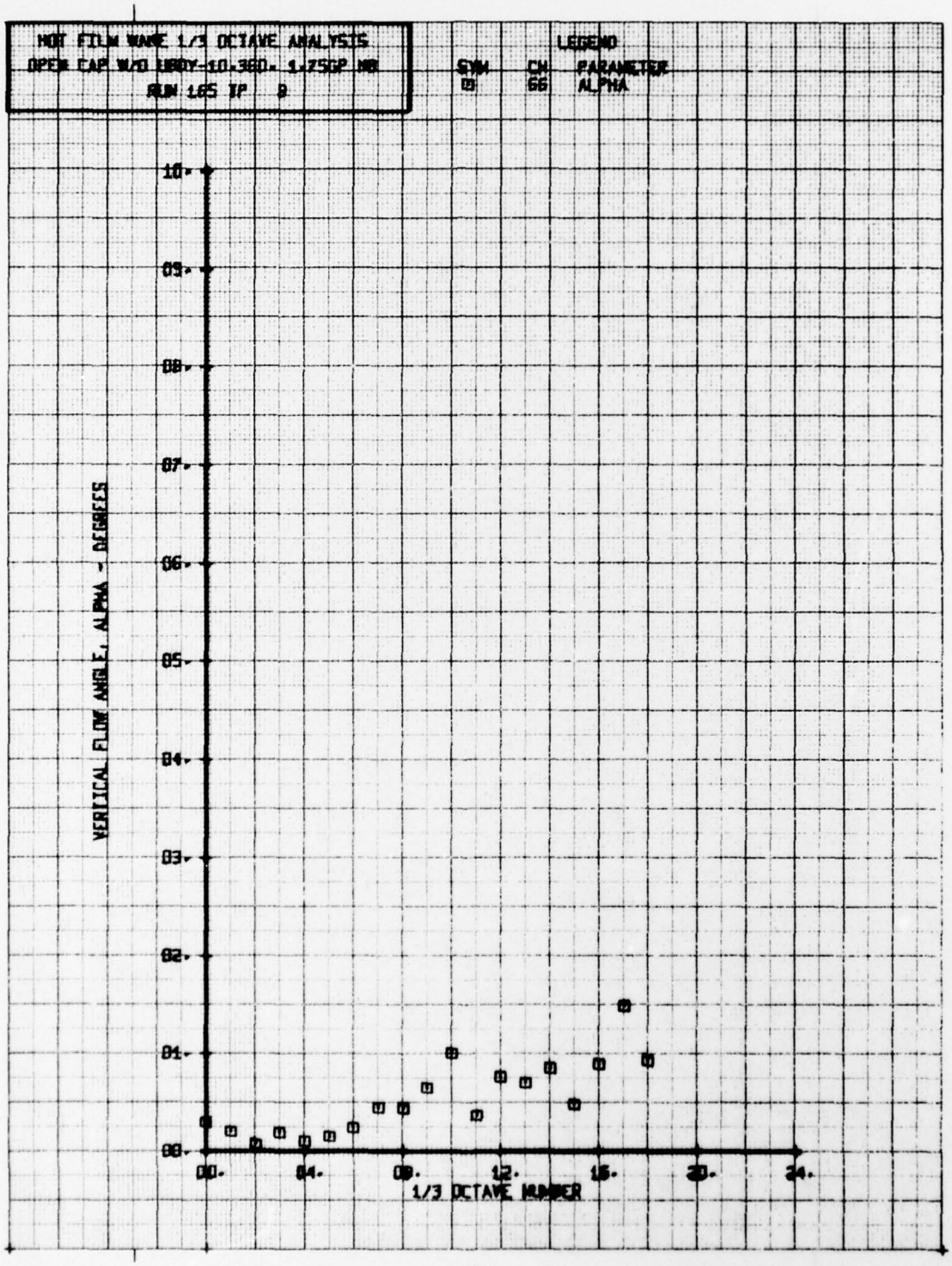

LEGEND
SYM DK PARAMETER
ALPHA
VERTICAL FLOW ANGLE, ALPHA, = DEGREES
1/3 OCTAVE NUMBER

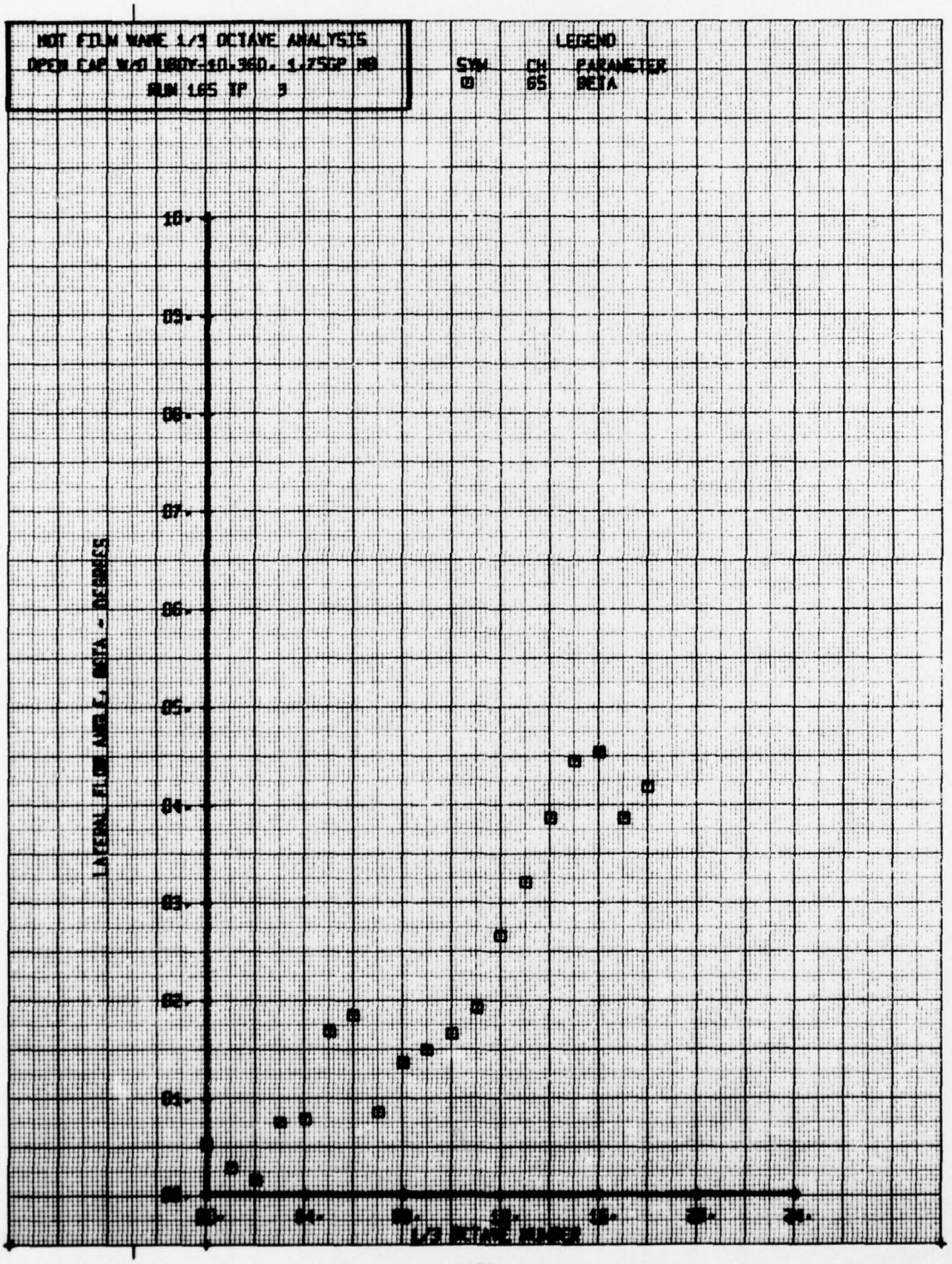

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAR W/O UNTY-60-360- 1.75DP HB
RUN 165 TP 4
LEGEND
SYM ID CH PARAMETER
ID 66 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

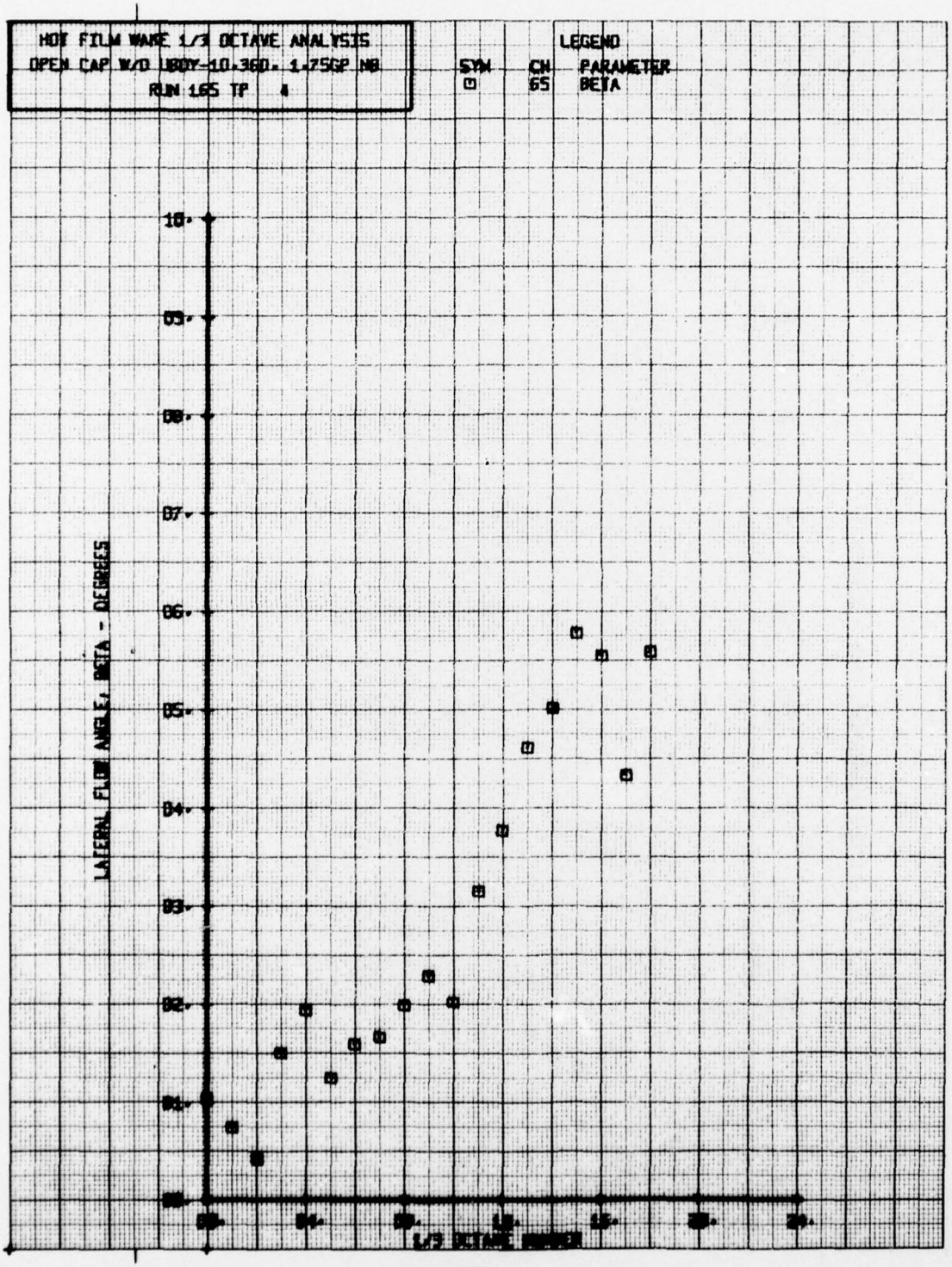

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O
RUN 165 TP 5
LEGEND
SYM CH PARAMETER
0 66 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE

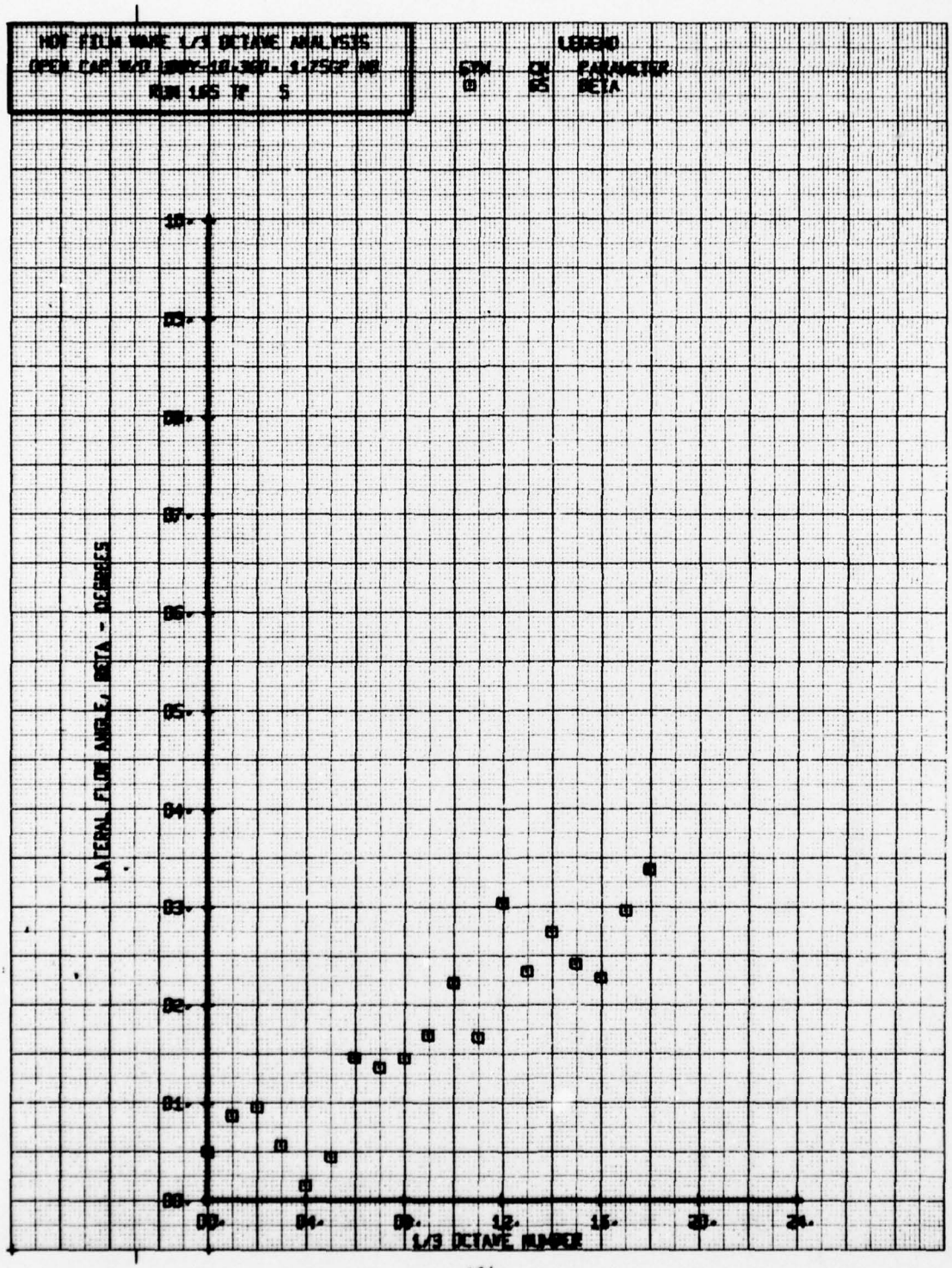

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBDY-10.360- 1.75GP NB
RUN 185 TP 6
LEGEND
SYM CH PARAMETER
66 ALPHA
10.
09.
08.
07.
06.
05.
04.
03.
02.
01.
00.
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

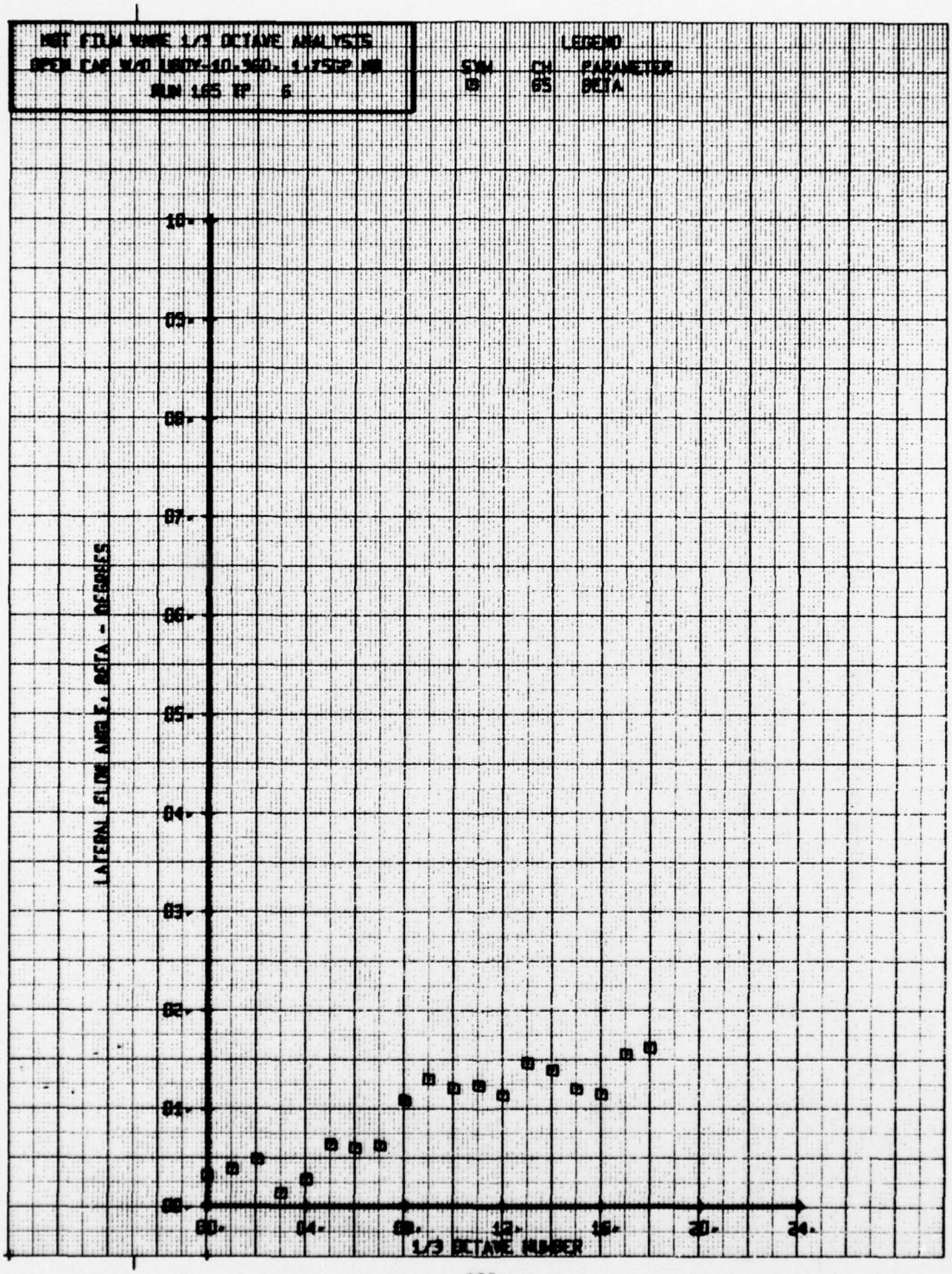

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O SWRV-10.360. 1.75DP MB
RUN 165 TP Y
LEGEND
SYM CH PARAMETER
0 66 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

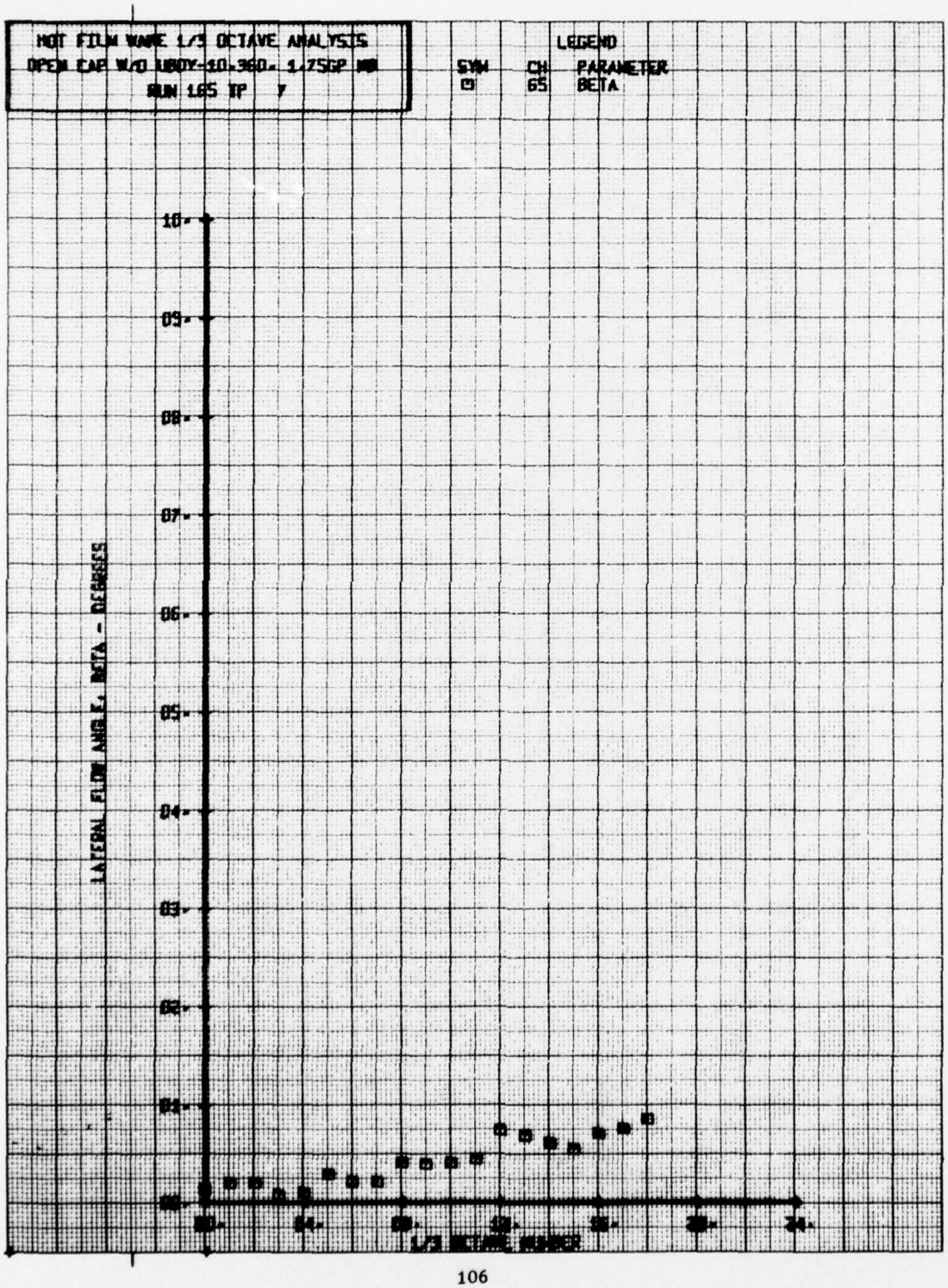

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O HBDY-10.360. 1.75GP MR
RUN 165 IP 9
LEGEND
SYM CH PARAMETER
66 ALPHA
10.
09.
08.
07.
06.
05.
04.
03.
02.
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00. 04. 08. 12. 16. 20. 24.
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

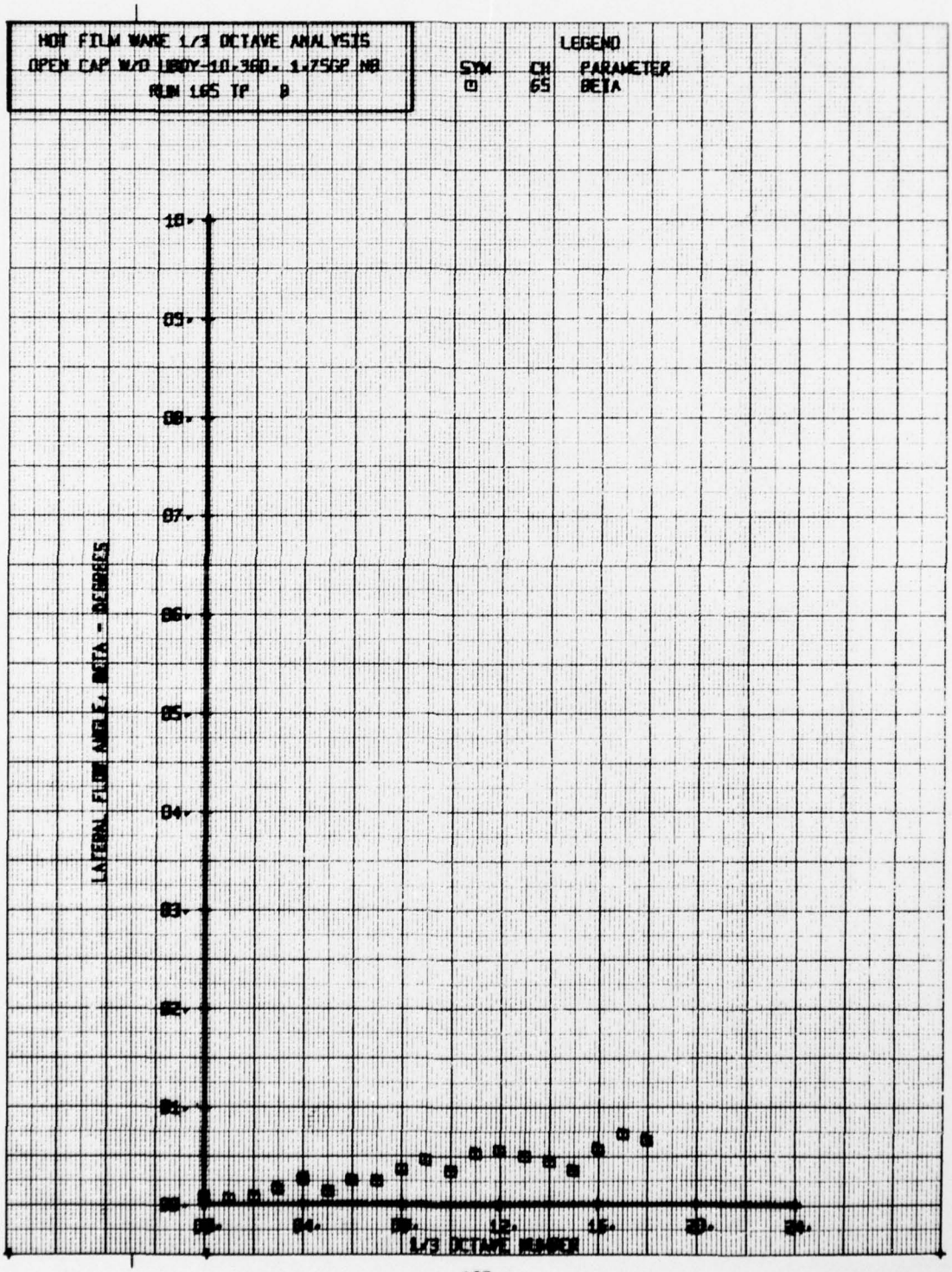

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBDY-10.360. 1.25GP MB
RUN 165 YP 3
LEGEND
SYM CH PARAMETER
65 BETA
10.
09.
08.
07.
06.
05.
04.
03.
02.
01.
00.
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER

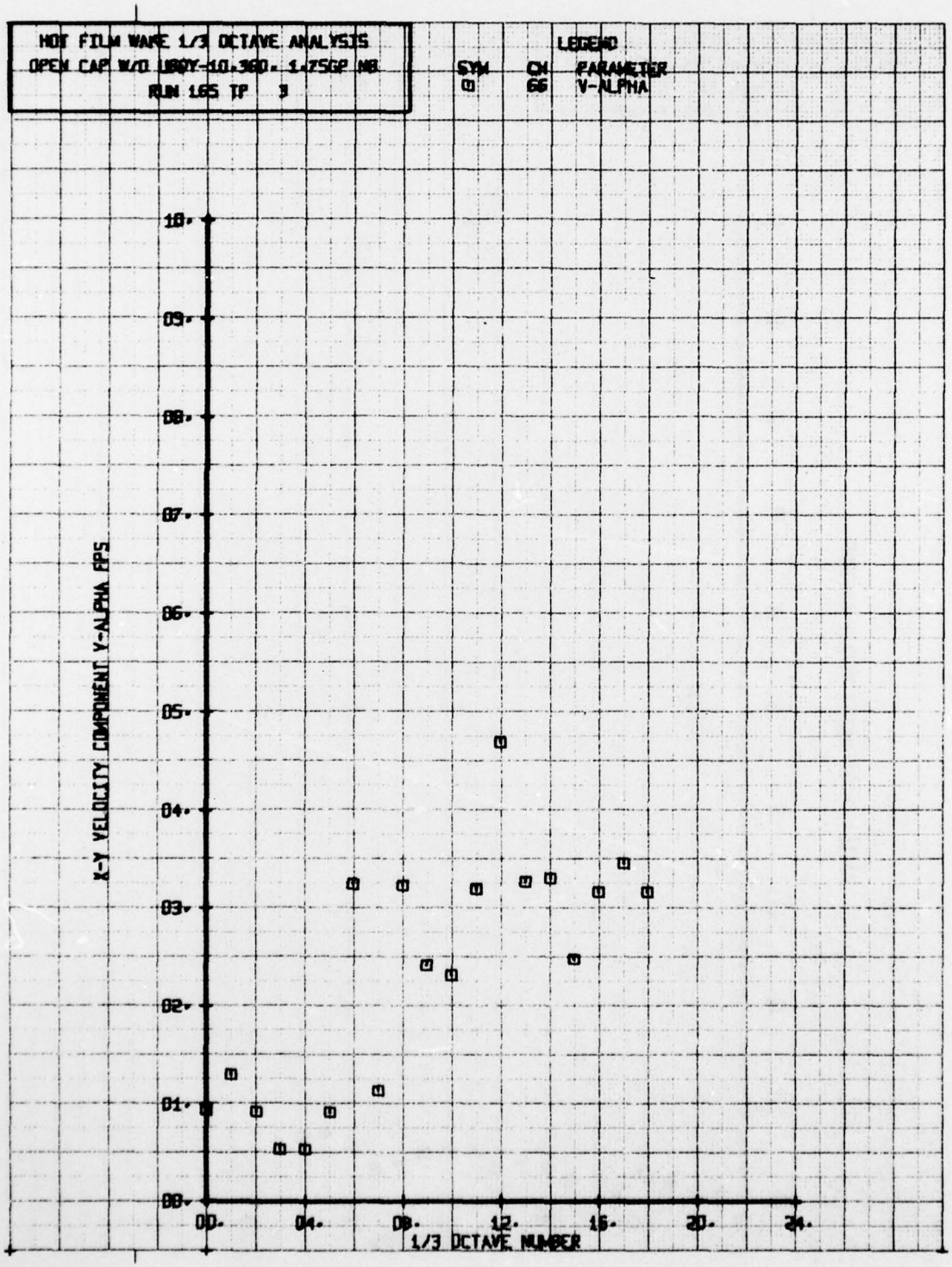

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O BODY-10.360. 1.75GP NB
RUN 165 TP 4
LEGEND
SYM CH PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER

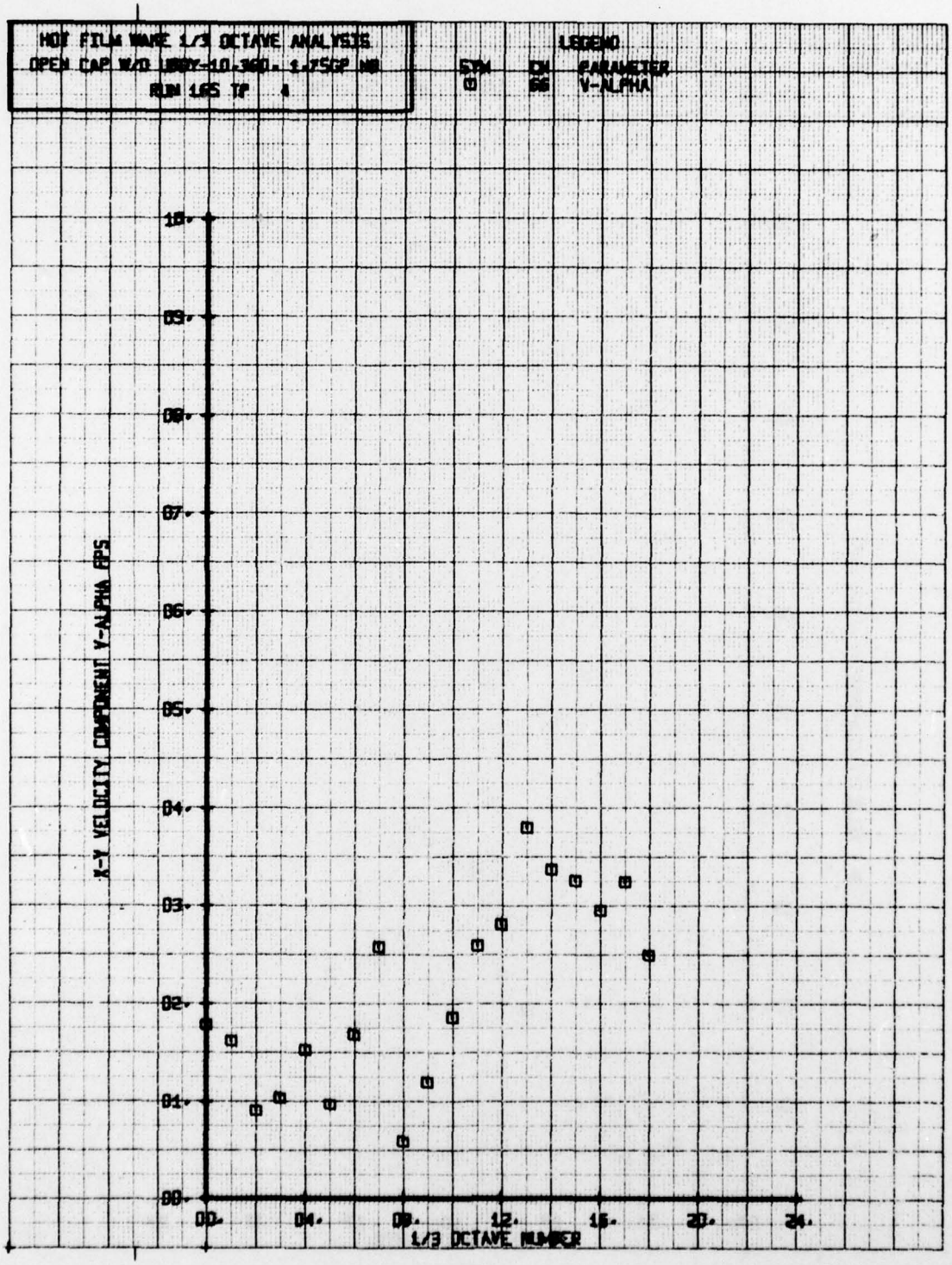

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O
RUN 165 TF 5
LEGEND
CPM
CH PARAMETER
05 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER

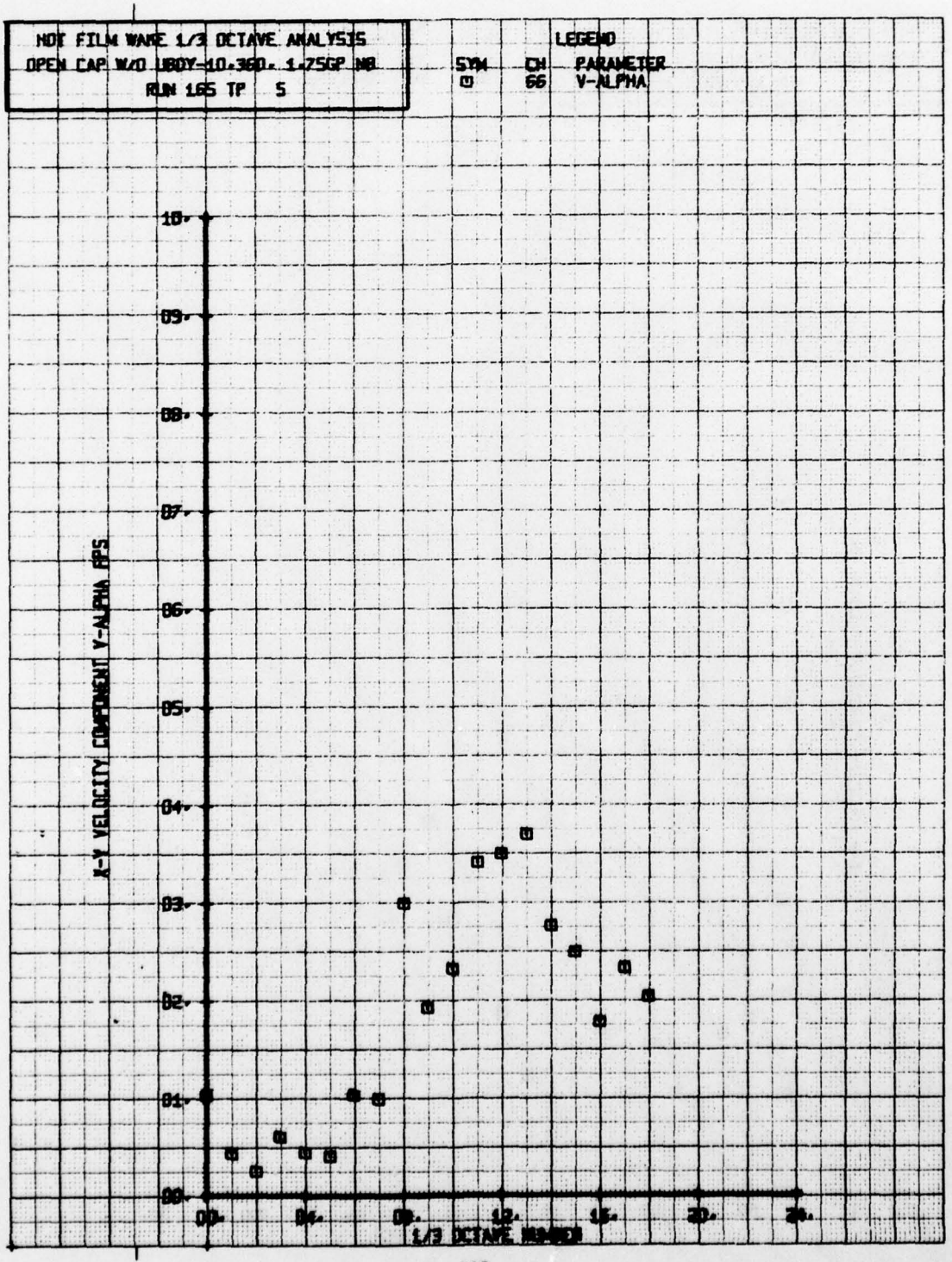

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAS W/O LBODY-10.360. 1.7502 MB
RUN 165 TP 6
LEGEND
SYM CH PARAMETER
0 65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER

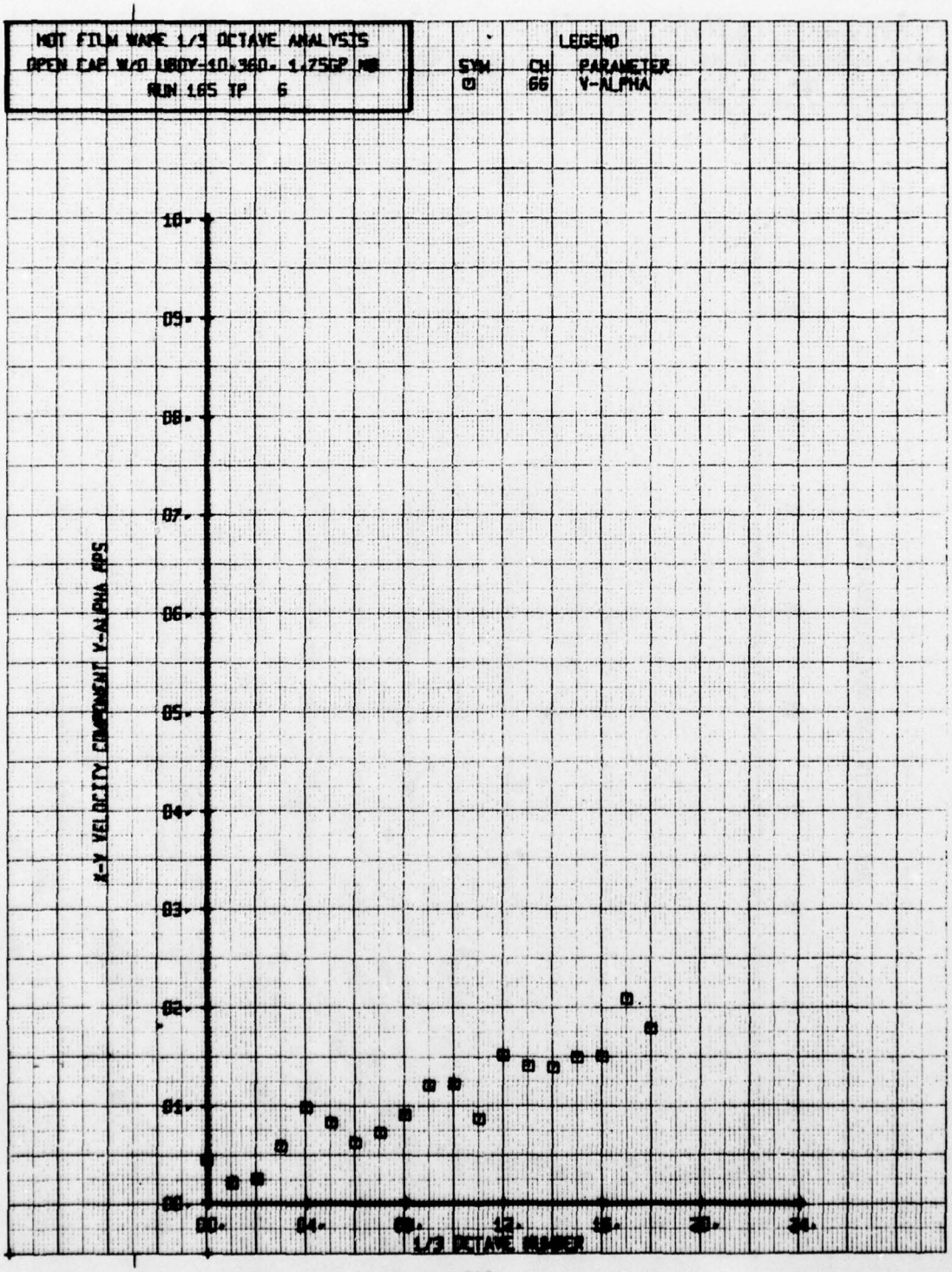

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY-10.360. 1.75GP MR
RUN 165 TP 7
LEGEND
SYM CH PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
10.
09.
08.
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06.
05.
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08.
12.
16.
20.
24.

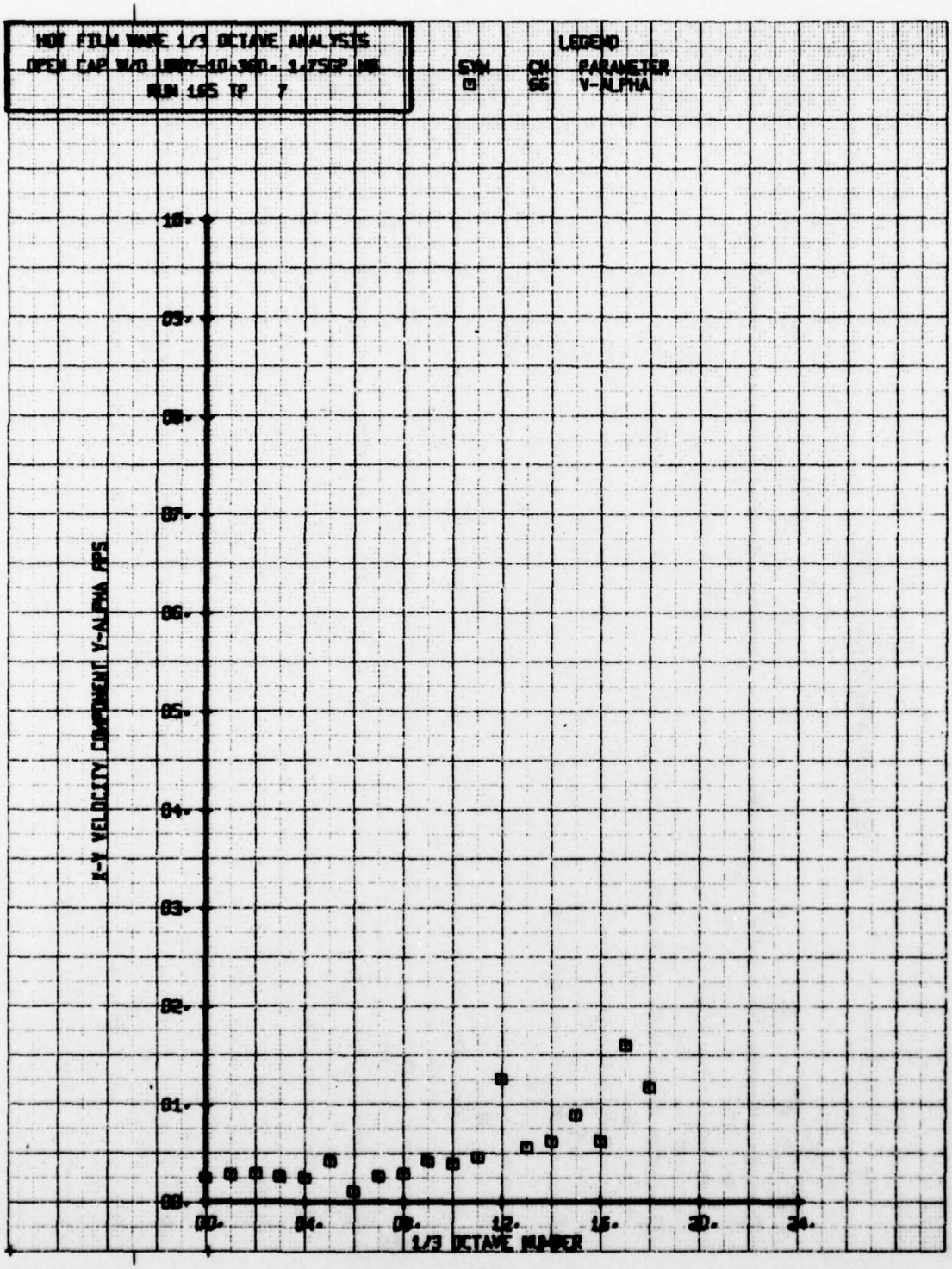

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O BODY-10.360. 1.75GP NB
RUN 165 TP 8
LEGEND
SYM CH PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER

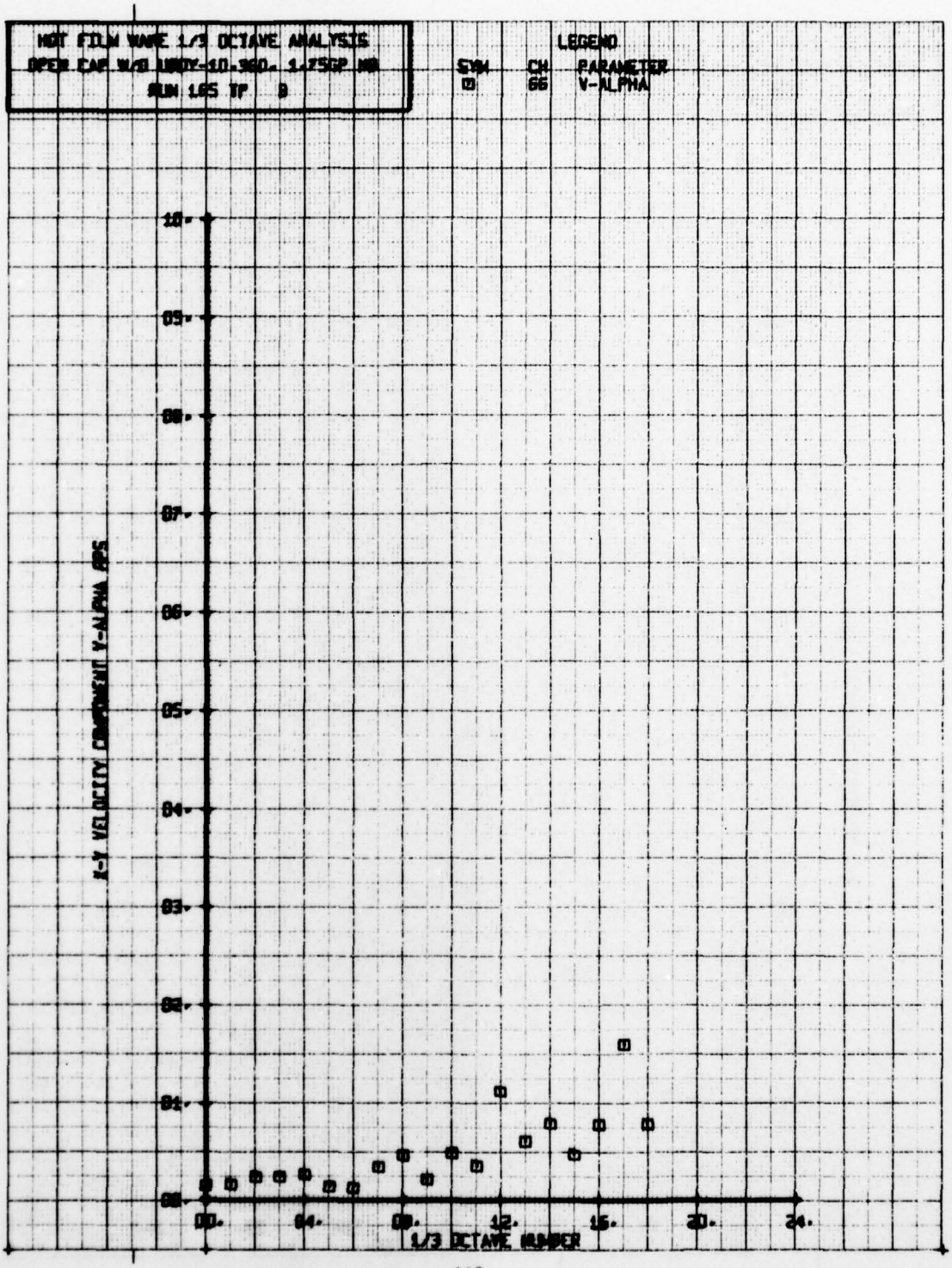

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY-10.360. 1.25GP NB
RUN 165 TP 3
LEGEND
SYM CH PARAMETER
0 66 V-ALPHA
X-Y VELOCITY COMPONENT Y-ALPHA FPS
1/3 OCTAVE NUMBER
10.
09.
08.
07.
06.
05.
04.
03.
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04.
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12.
16.
20.
24.

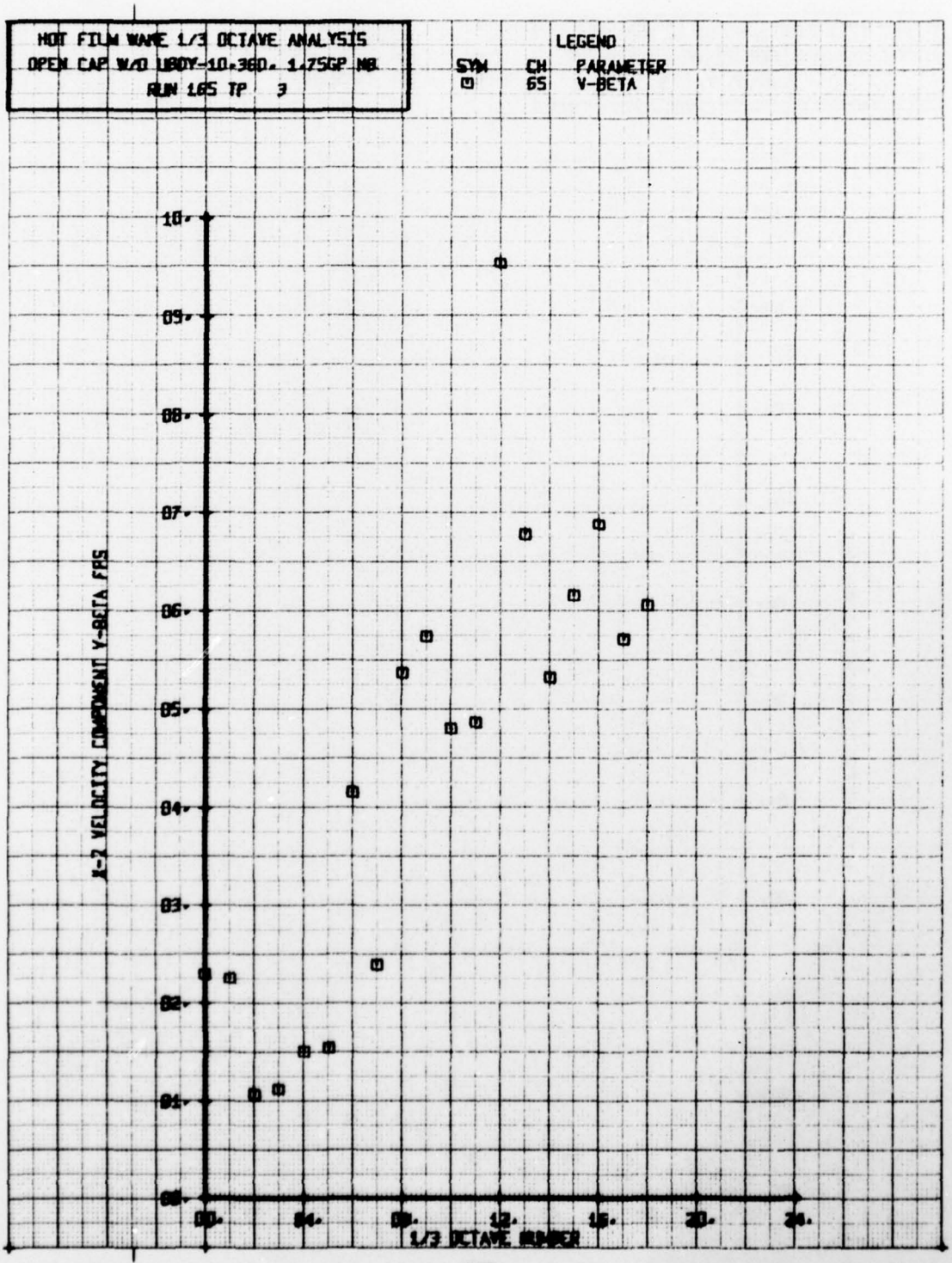

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O
RUN 165 TP 4
LEGEND
SYM DM PARAMETER
66 V-ALPHA
X-Y VELOCITY COMPONENT V-ALPHA FPS
1/3 OCTAVE NUMBER
00.
04.
08.
12.
16.
20.
24.

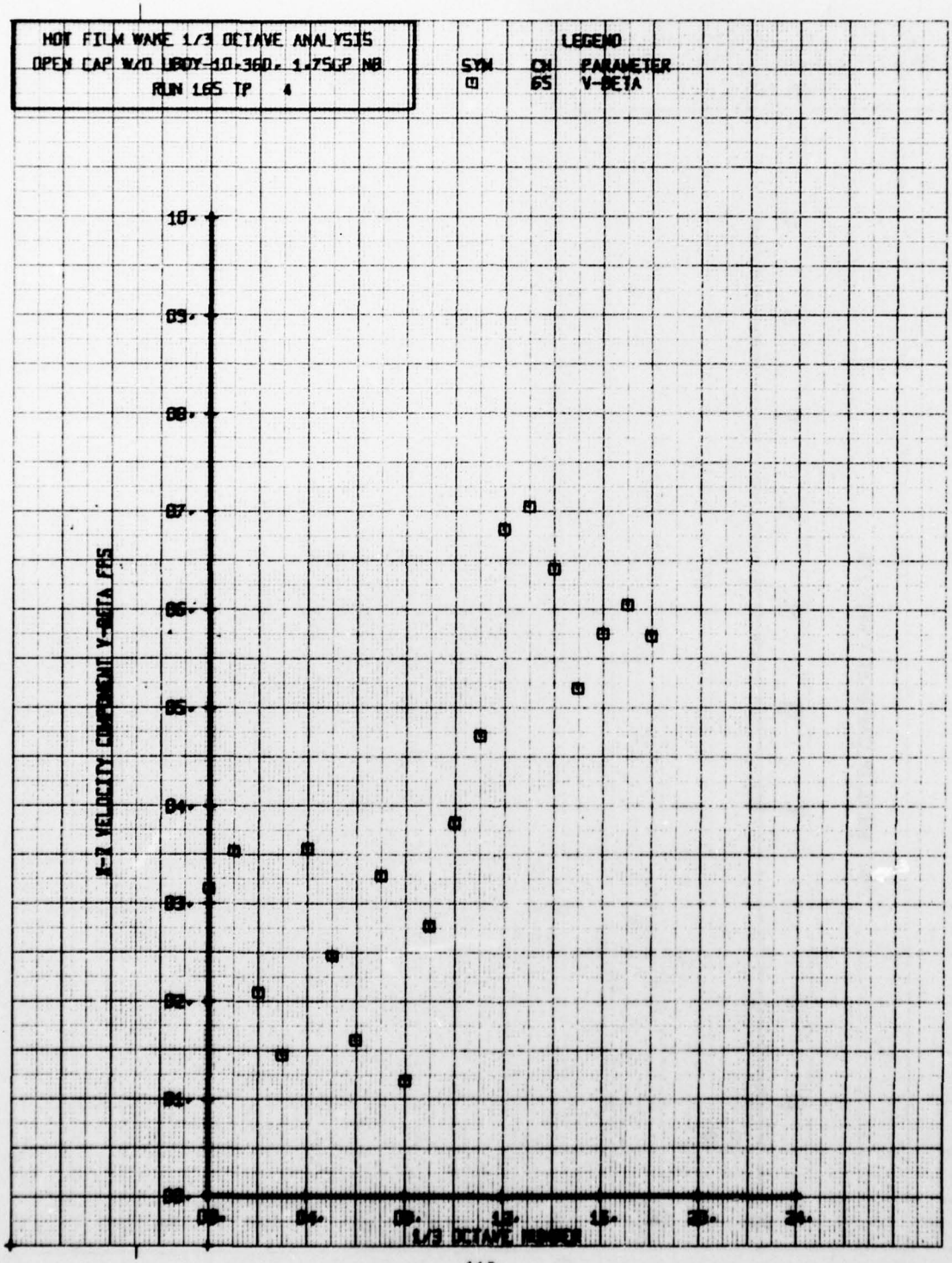

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY-10.360. 1.75GP NB
RUN 165 TP 5
LEGEND
SYM CH PARAMETER
66 V-ALPHA
X-Y VELOCITY COMPONENT V-ALPHA FPS
1/3 OCTAVE NUMBER

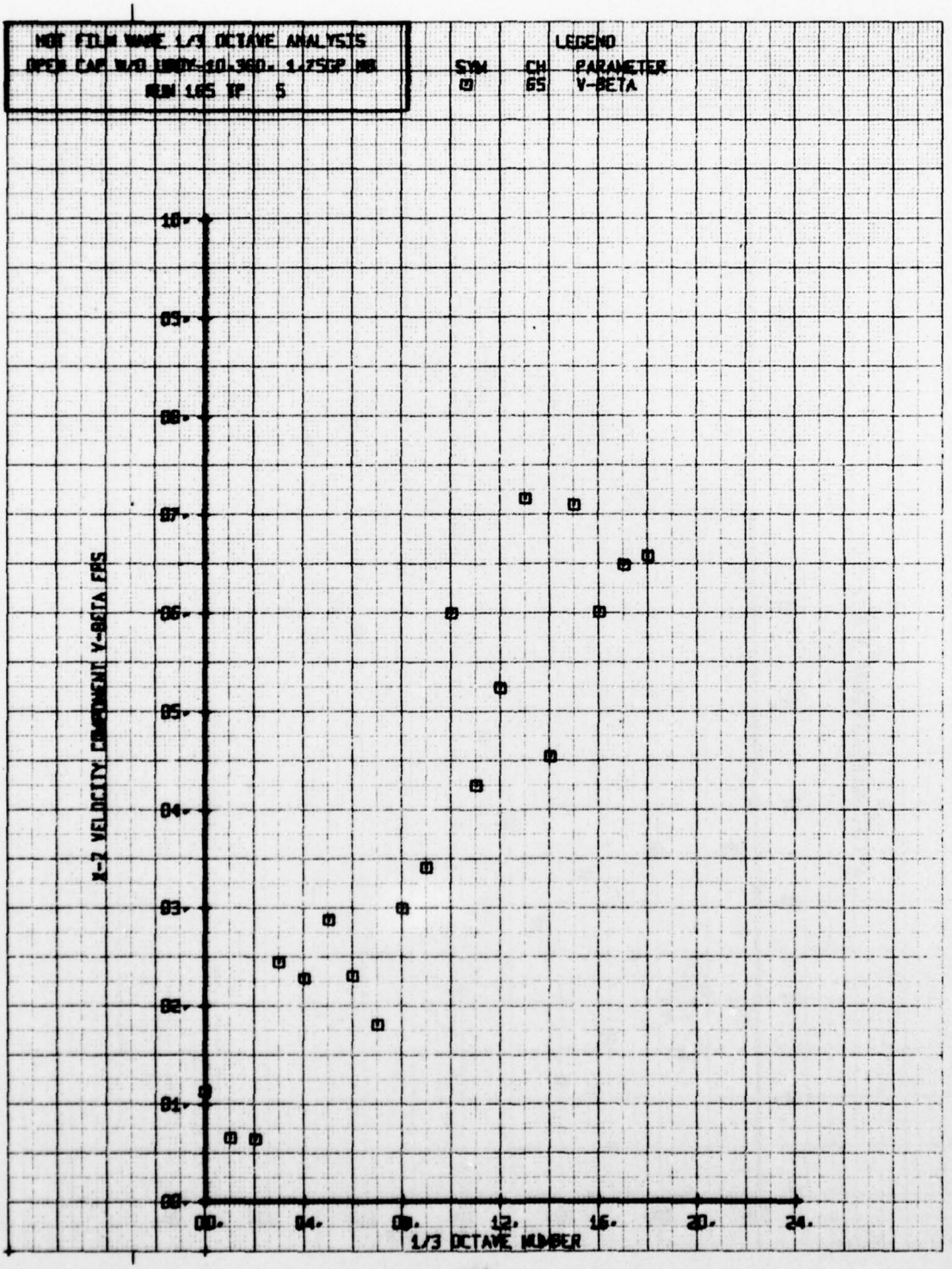

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAB W/O UBODY-10.360. 1.75GP MB
RUN 165 TP 6
LEGEND
SYM CH PARAMETER
66 V-ALPHA
10.
09.
08.
07.
06.
05.
04.
03.
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04.
08.
12.
16.
20.
24.
1/3 OCTAVE NUMBER

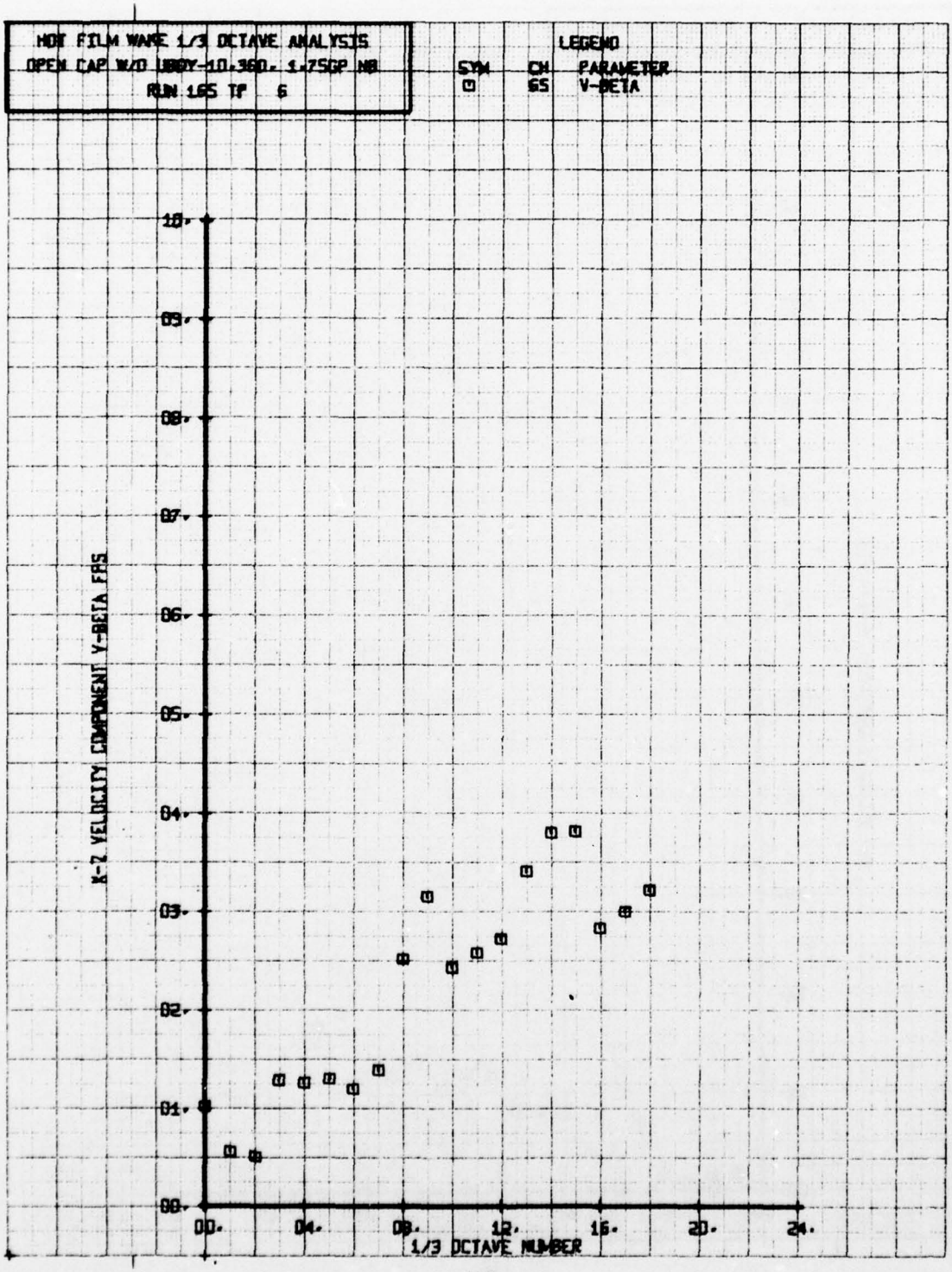

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBRY-10-360. 1.75GP MB
RUN 165 TP 7
LEGEND
SYM CH PARAMETER
□ 66 V-ALPHA
X-Y VELOCITY COMPONENT V-ALPHA FPS
1/3 OCTAVE NUMBER

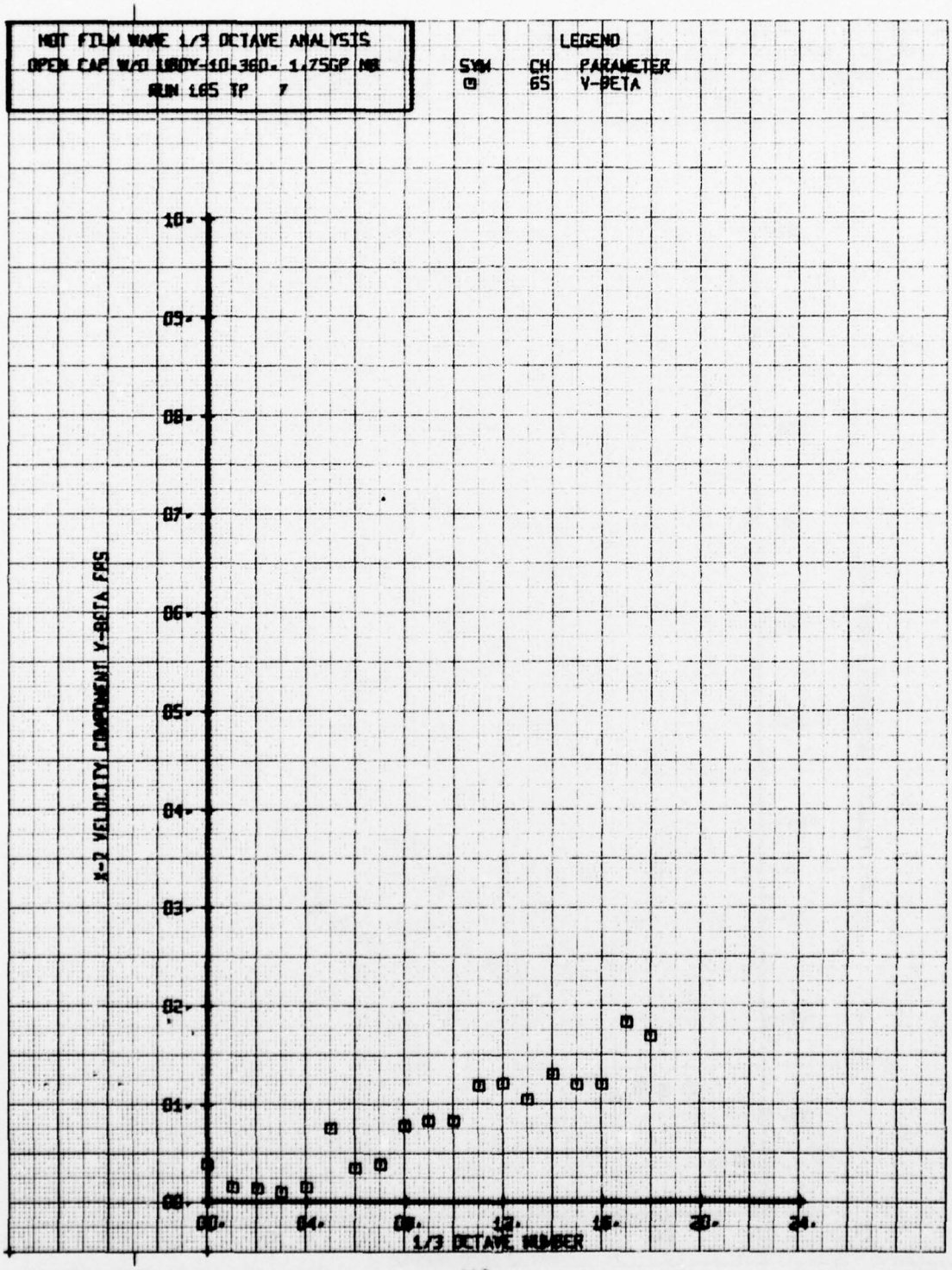

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAV W/O WBDY-10.360. 1.75GP MB
RUN 165 TP 8
LEGEND
SYM CH PARAMETER
66 V-ALPHA
10.
09.
08.
07.
06.
05.
04.
03.
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04.
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20.
24.
1/3 OCTAVE NUMBER

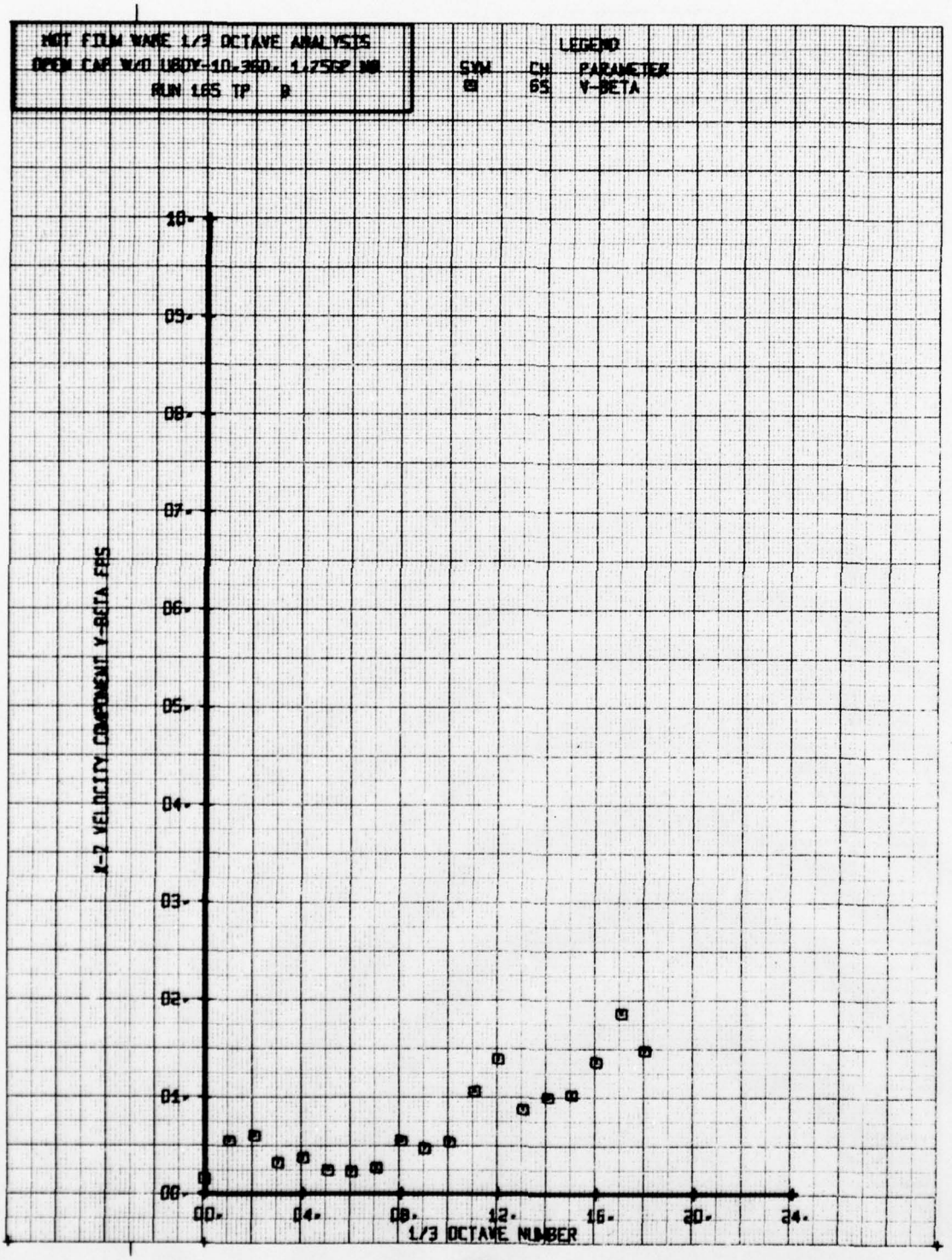

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY-10.360. 1.75GP NB
RUN 185 TP 3
LEGEND
SYM CH PARAMETER
65 V-BETA
10.
09.
08.
07.
06.
05.
04.
03.
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00.
X-2 VELOCITY COMPONENT V-BETA FPS
1/3 OCTAVE NUMBER

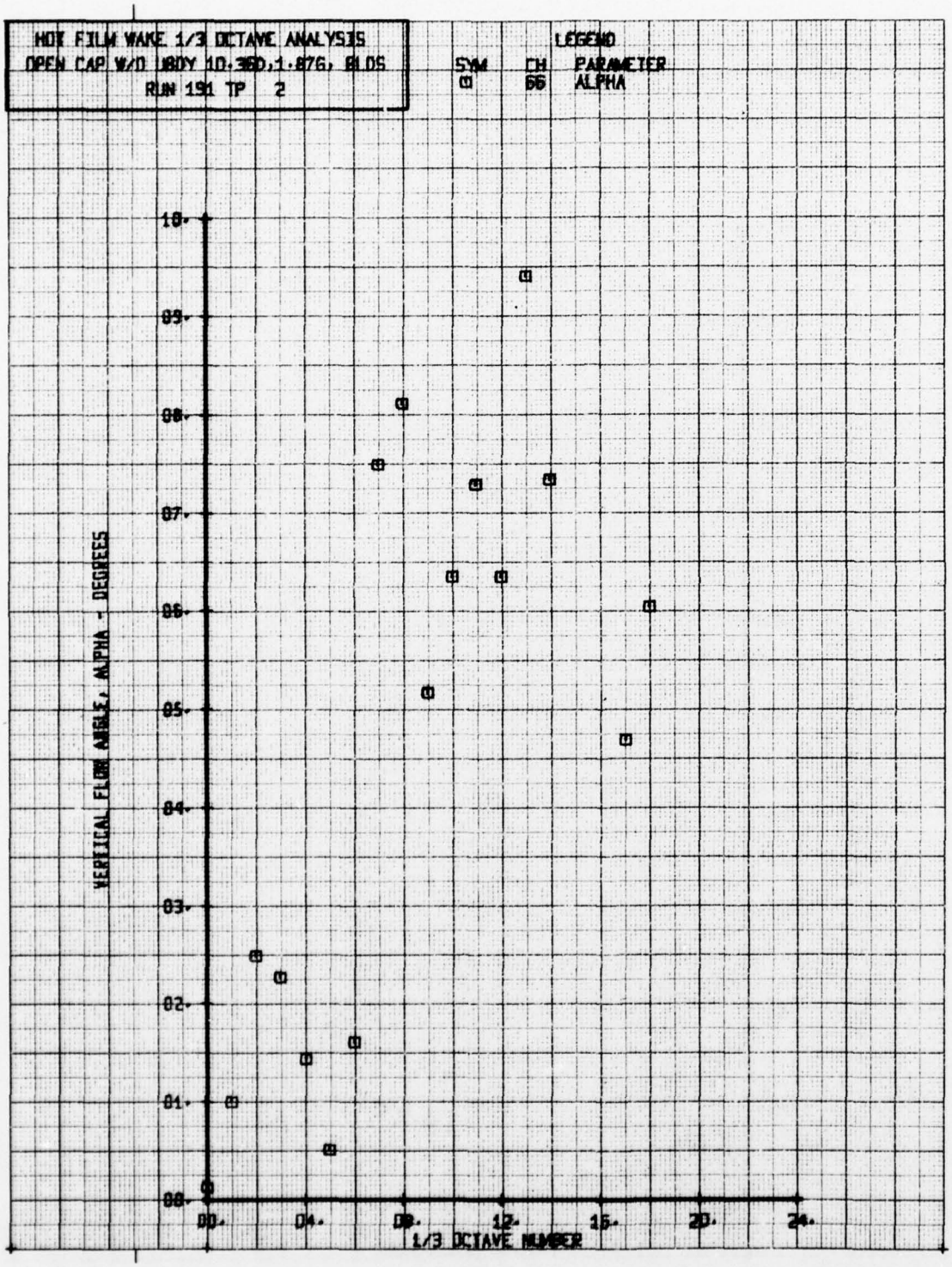

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY-10.360. 1.75GP NB
RUN 165 TP 4
LEGEND
SYM CH PARAMETER
65 V-BETA
10.
09.
08.
07.
06.
05.
04.
03.
02.
01.
00.
X-Z VELOCITY COMPONENT V-BETA FPS
1/3 OCTAVE NUMBER

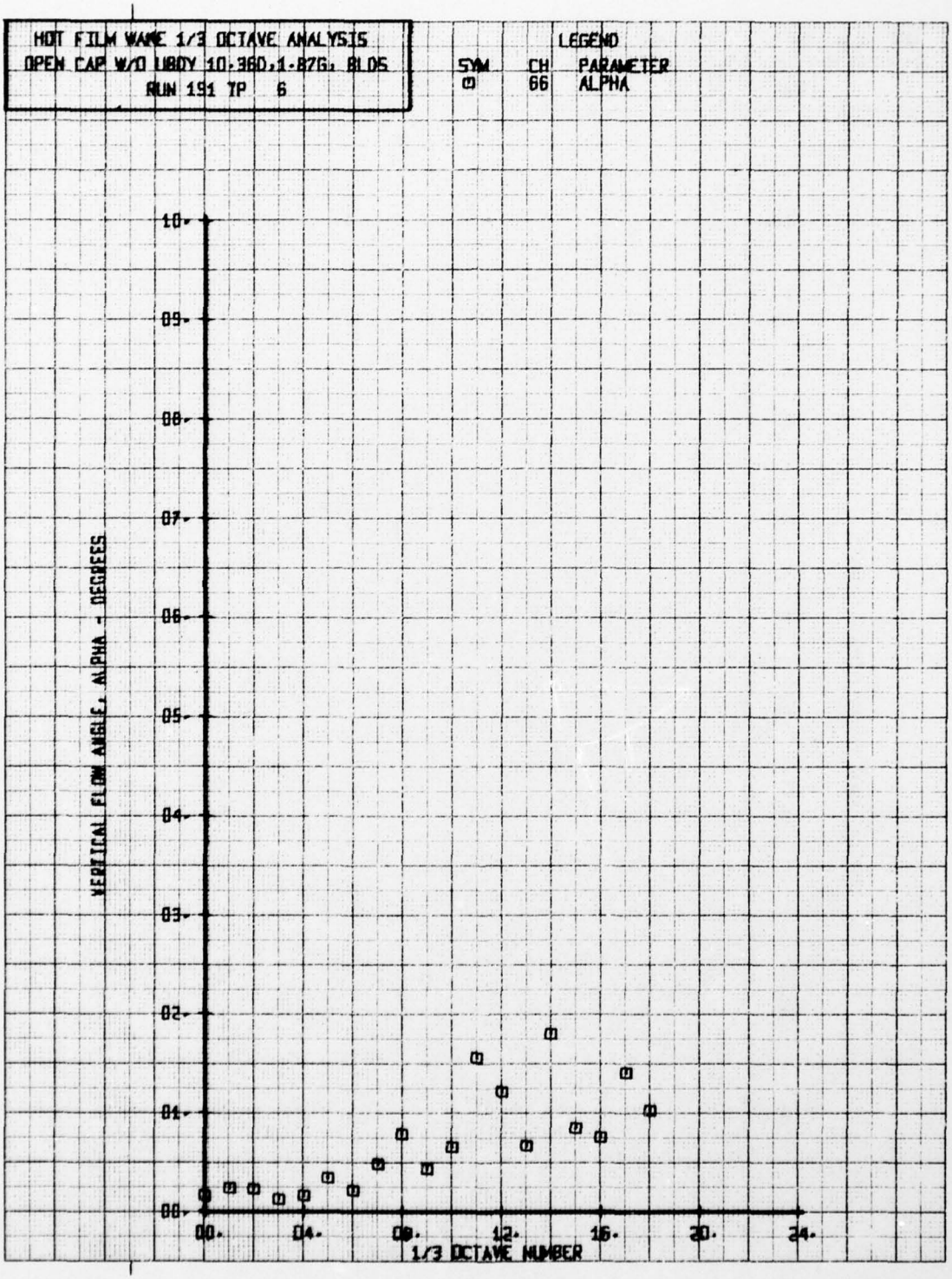

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBDY-10.360- 1.75GP MB
RUN 165 TP 5
LEGEND
SYM CH PARAMETER
65 V-BETA
X-2 VELOCITY COMPONENT V-BETA FBS
1/3 OCTAVE NUMBER
00.
04.
08.
12.
16.
20.
24.

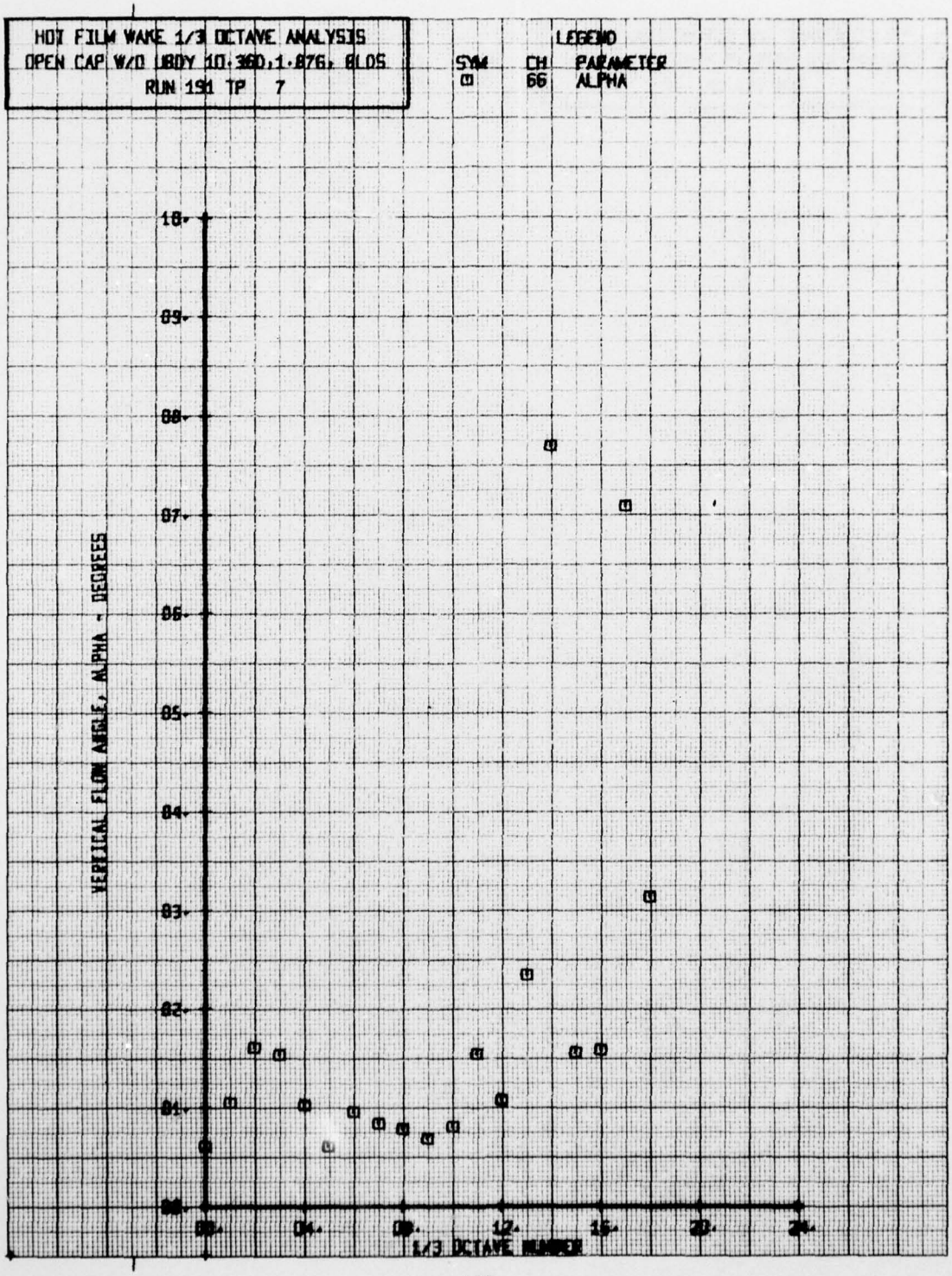

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O BODY-10.360. 1.75GP NB
RUN 165 TP 6
LEGEND
SYM CH PARAMETER
GS V-BETA
10.
09.
08.
07.
06.
05.
04.
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K-Z VELOCITY COMPONENT V-BETA FRS
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04.
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12.
16.
20.
24.
1/3 OCTAVE NUMBER

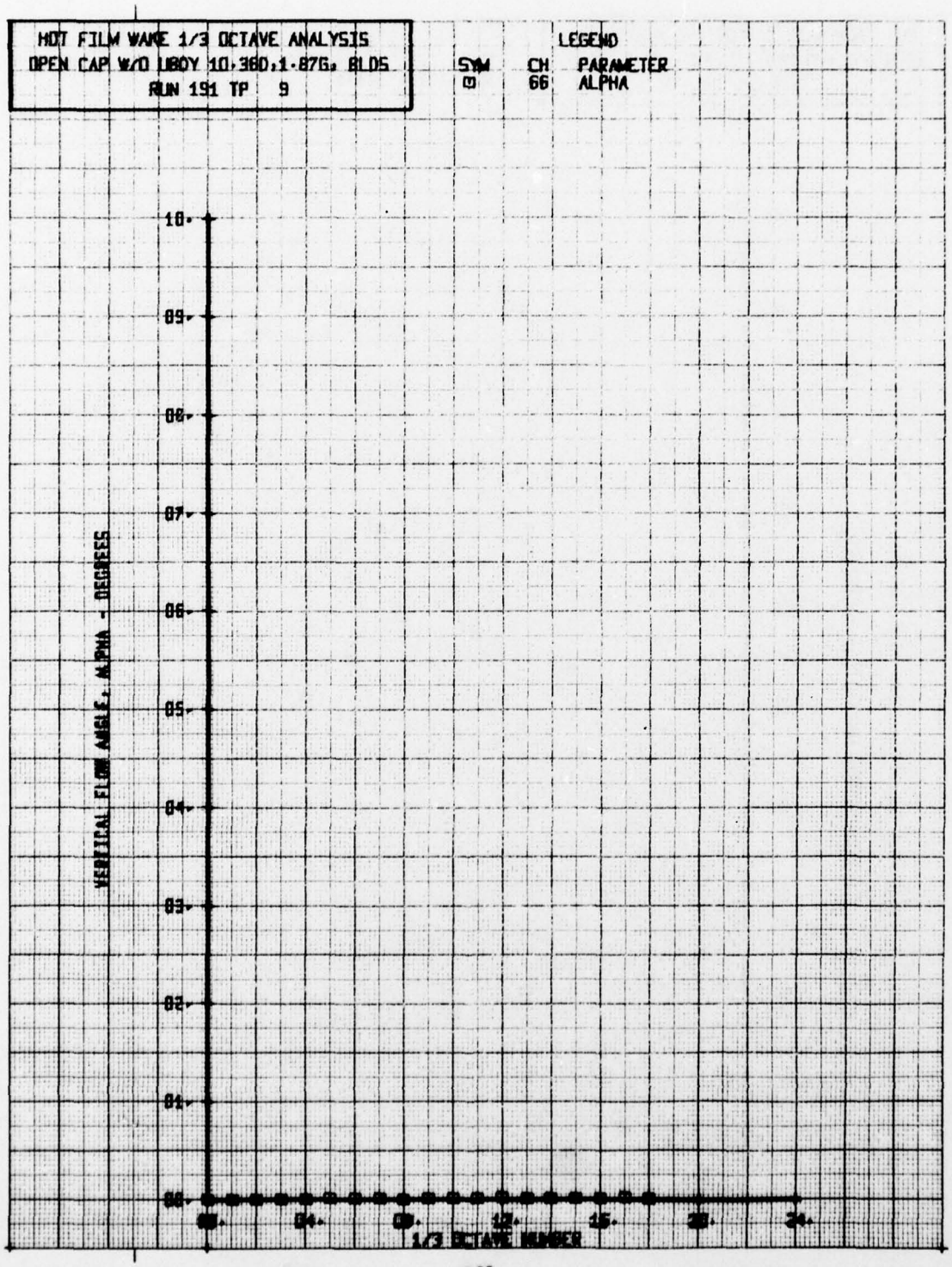

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAF W/O BUOY-10.360. 1.75GP MB
RUN 185 TP 7
LEGEND
SYM CH PARAMETER
65 V-BETA
10.
09.
08.
07.
06.
05.
04.
03.
02.
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00.
X-2 VELOCITY COMPONENT V-BETA FPS
00.
04.
08.
12.
16.
20.
24.
1/3 OCTAVE NUMBER

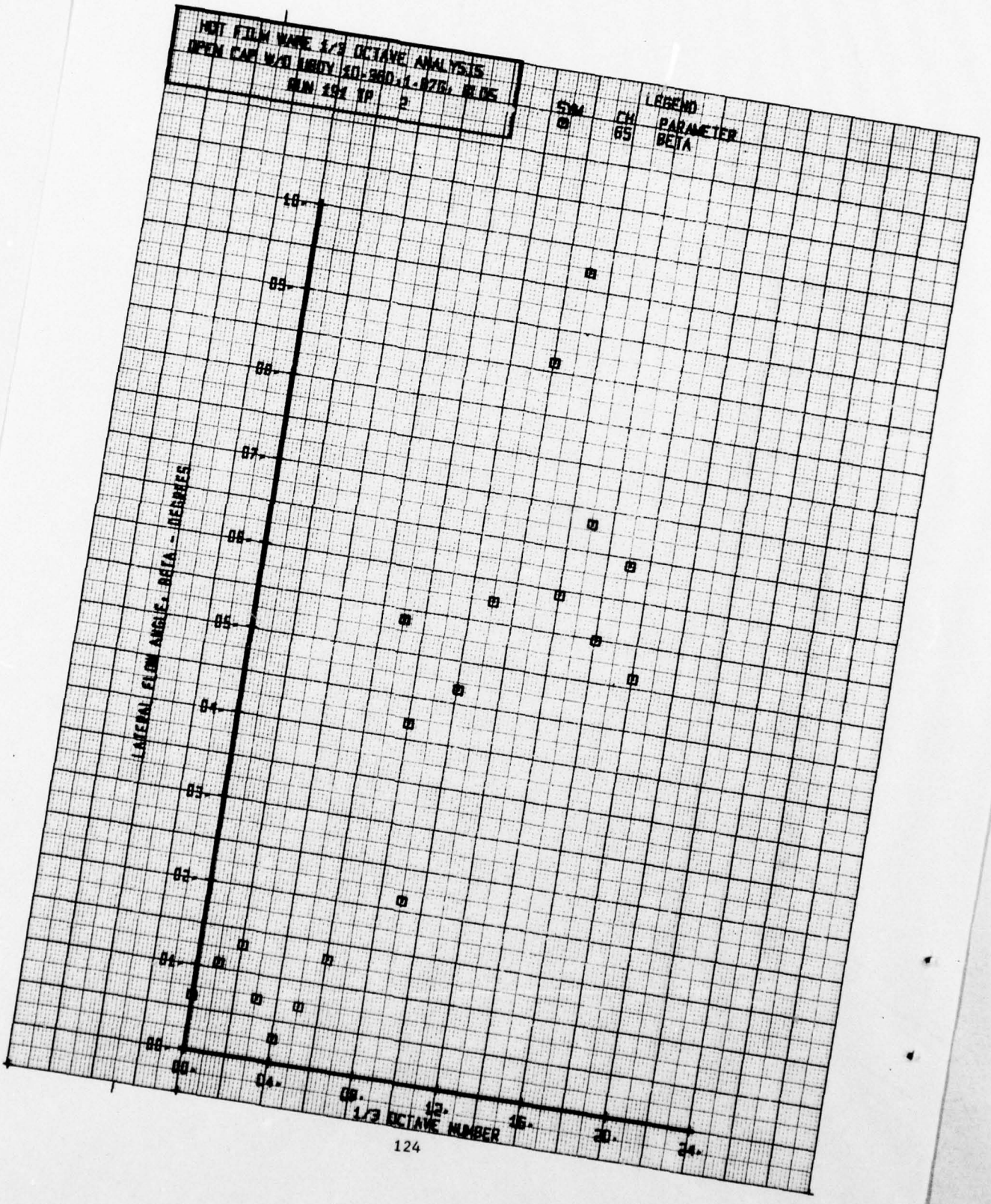

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY-10.36D. 1.75GP MB
RUN 185 TP 8
LEGEND
SYM CH PARAMETER
65 V-BETA
10.
09.
08.
07.
06.
05.
04.
03.
02.
01.
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04.
08.
12.
16.
20.
24.
1/3 OCTAVE NUMBER
X-Z VELOCITY COMPONENT V-BETA FBS

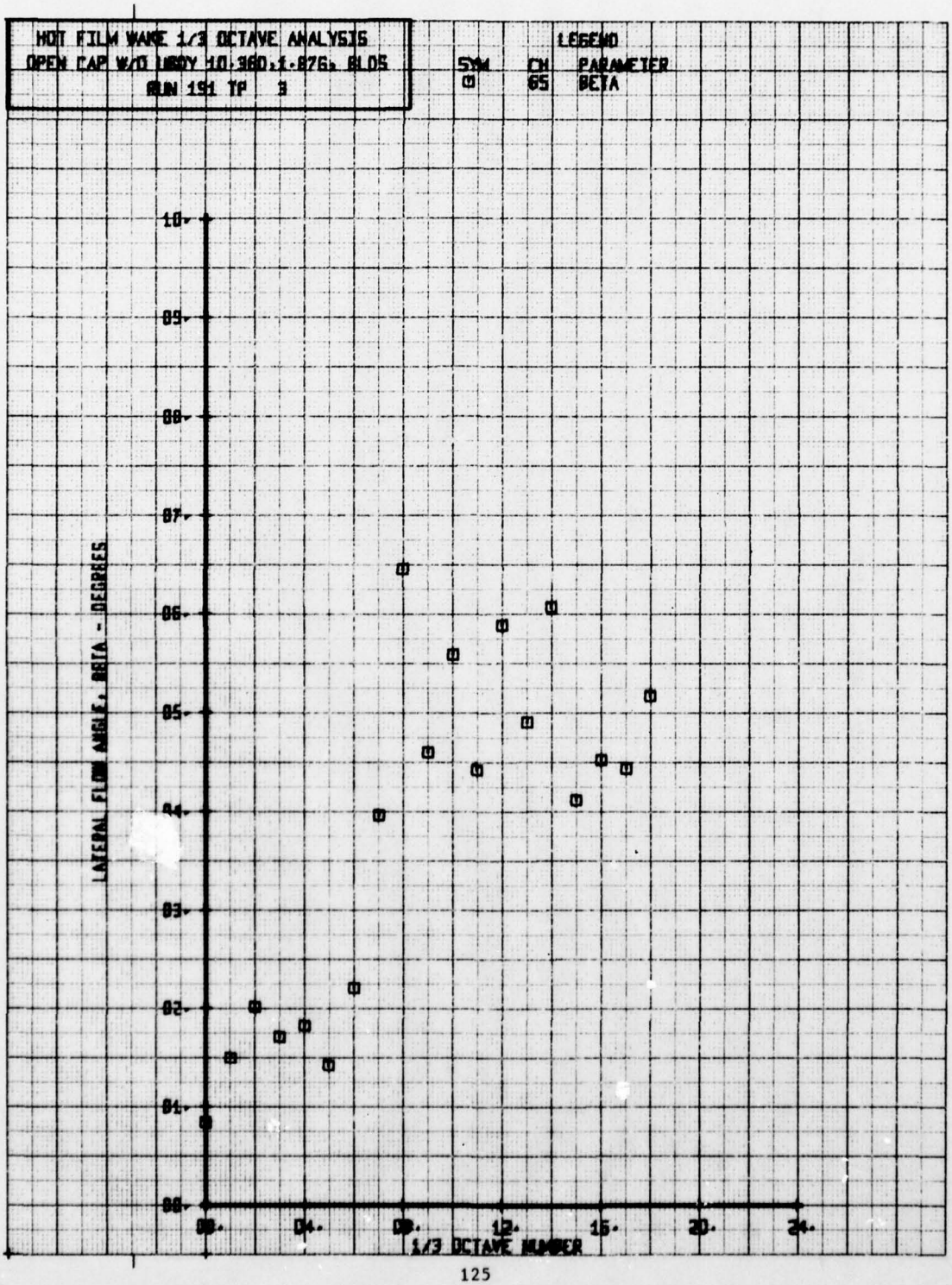

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/D BODY 10.36D,1.87G, BLDS
RUN 191 TP 2
LEGEND
SYM CH PARAMETER
66 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER
18.
03.
08.
07.
06.
05.
04.
03.
02.
01.
00.
00.
04.
08.
12.
16.
20.
24.

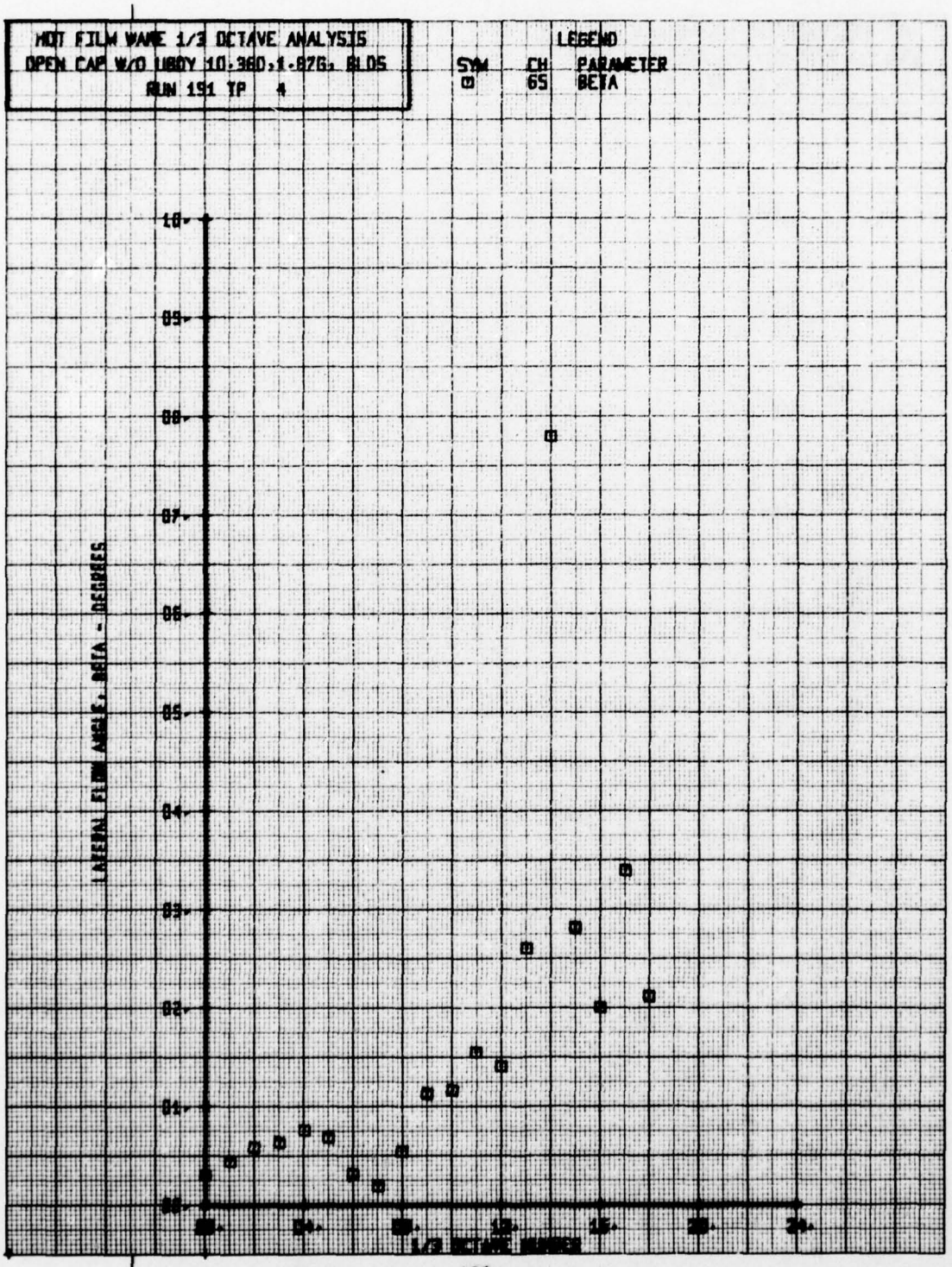

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBODY 10.360,1.876, BLDS
RUN 191 TP 6
LEGEND
SYM CH PARAMETER
66 ALPHA
10.
09.
08.
07.
06.
05.
04.
03.
02.
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VERTICAL FLOW ANGLE, ALPHA - DEGREES
00.
04.
08.
12.
16.
20.
24.
1/3 OCTAVE NUMBER

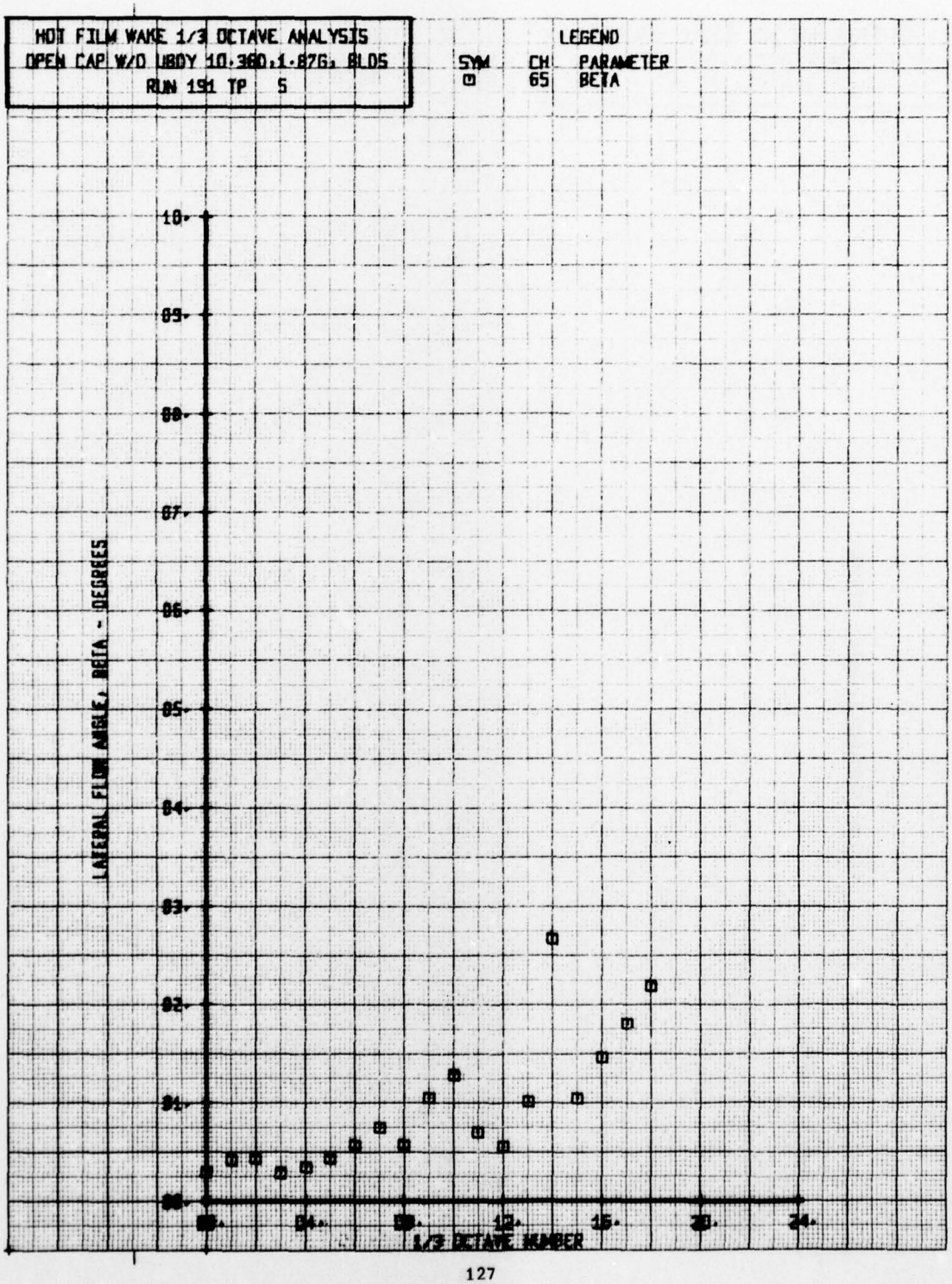

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O BODY 10.360,1.876, BLOS
RUN 191 TP 7
LEGEND
SYM CH PARAMETER
66 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

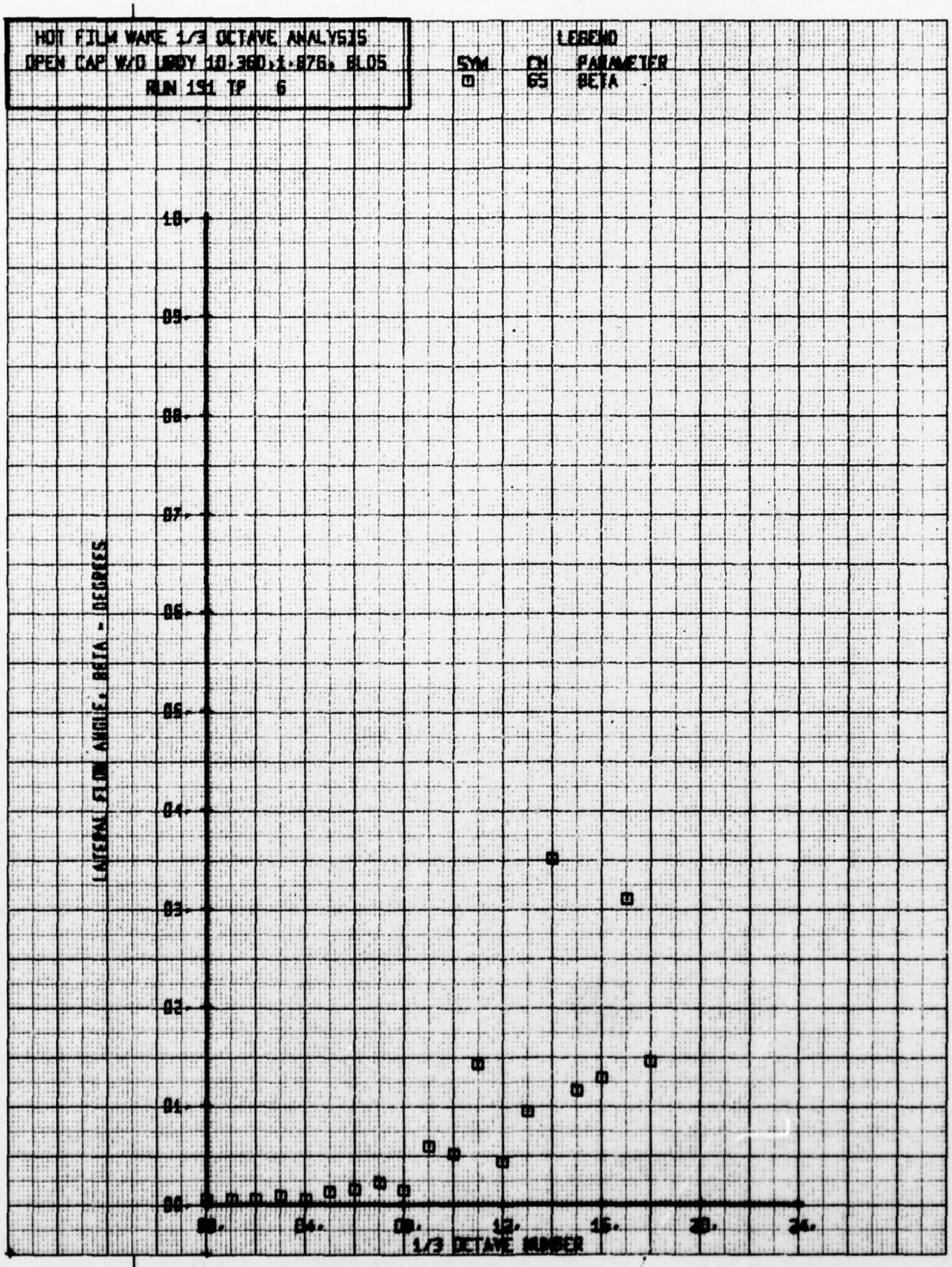

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY 10,360,1.87G, BLDS
RUN 191 TP 9
LEGEND
SYM CH PARAMETER
66 ALPHA
10.
09.
08.
07.
06.
05.
04.
03.
02.
01.
00.
VERTICAL FLOW ANGLE, ALPHA - DEGREES
04.
09.
12.
15.
20.
24.
1/3 OCTAVE NUMBER

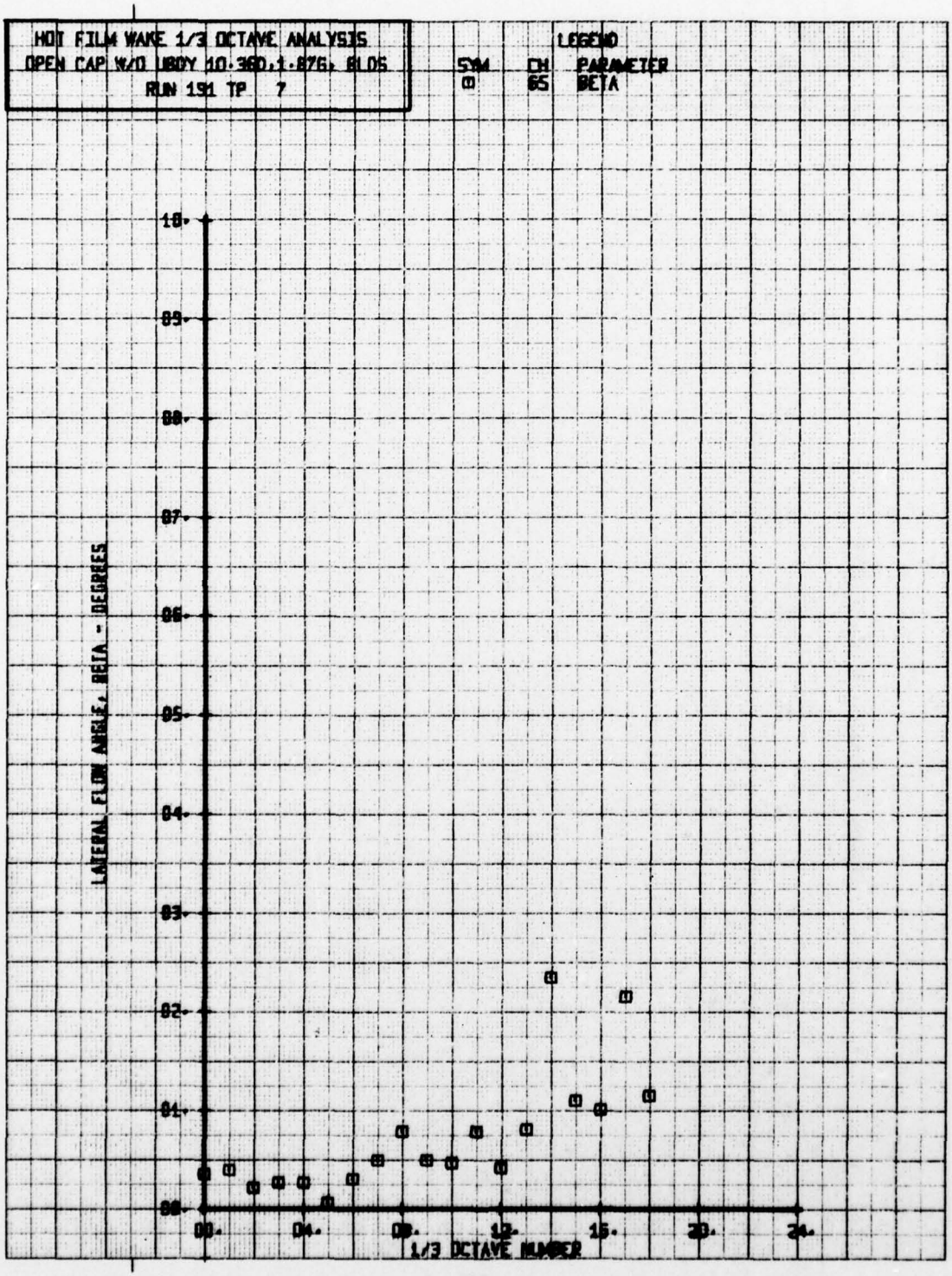

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O LIBDY (0-360,1-826, BLDS
RUN 194 TP 2
LEGEND
SYM CH PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER

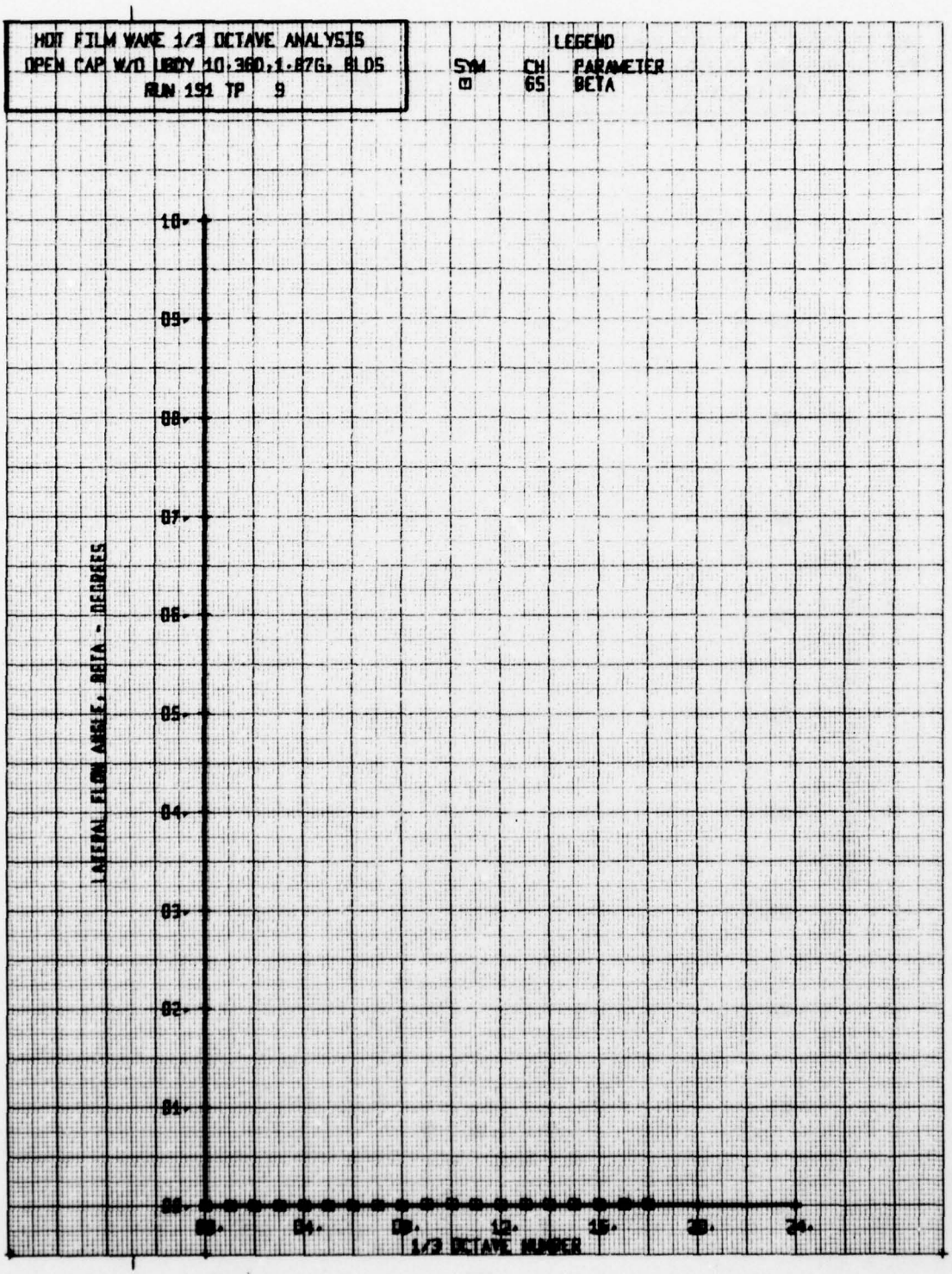

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O LIBBY 10.960,1.876, BLDS
RUN 191 TP 3
LEGEND
SYM CH PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER

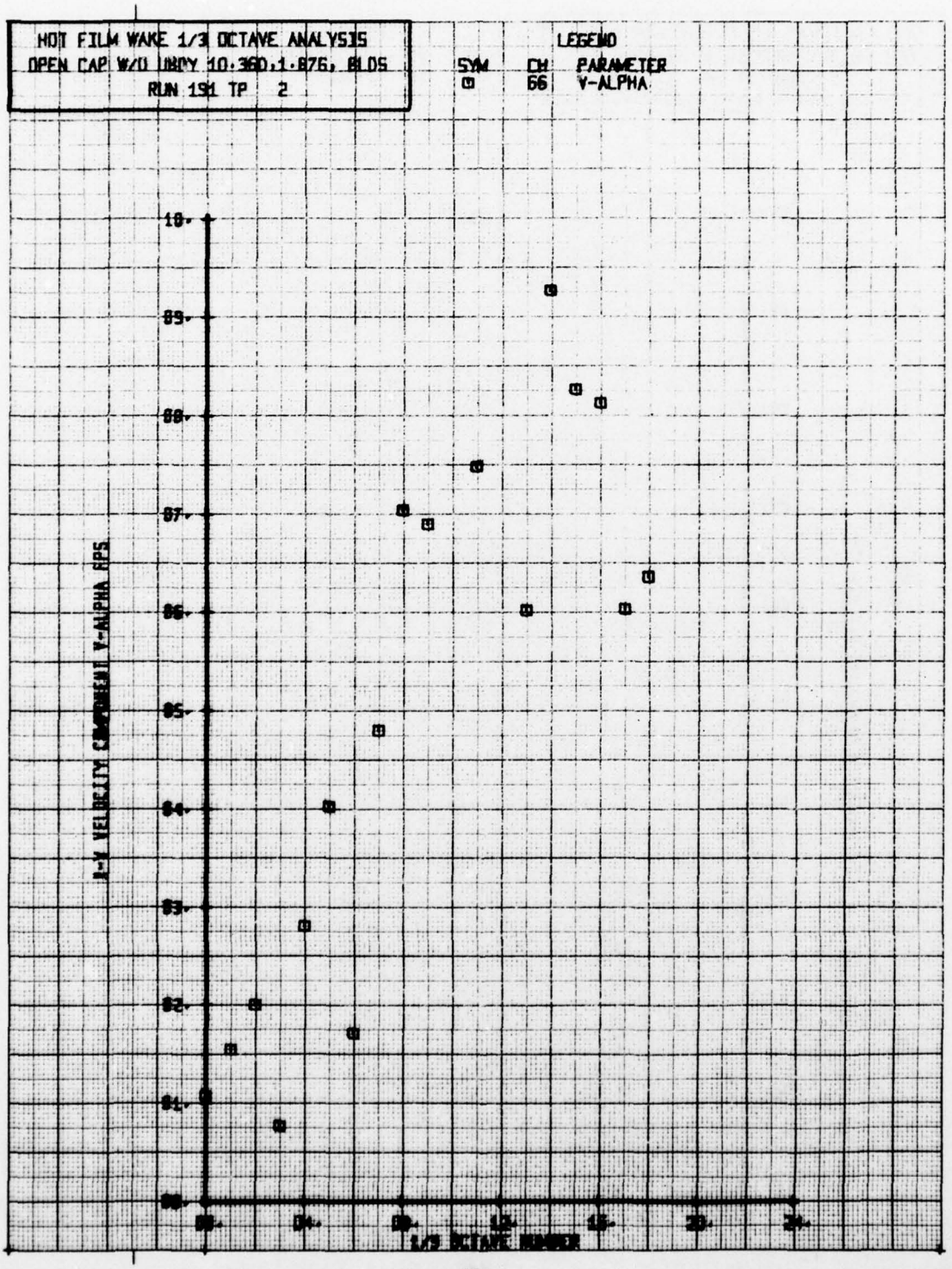

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY 10.360,1.87G, BLDS
RUN 191 TP 4
LEGEND
SYM CH PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER

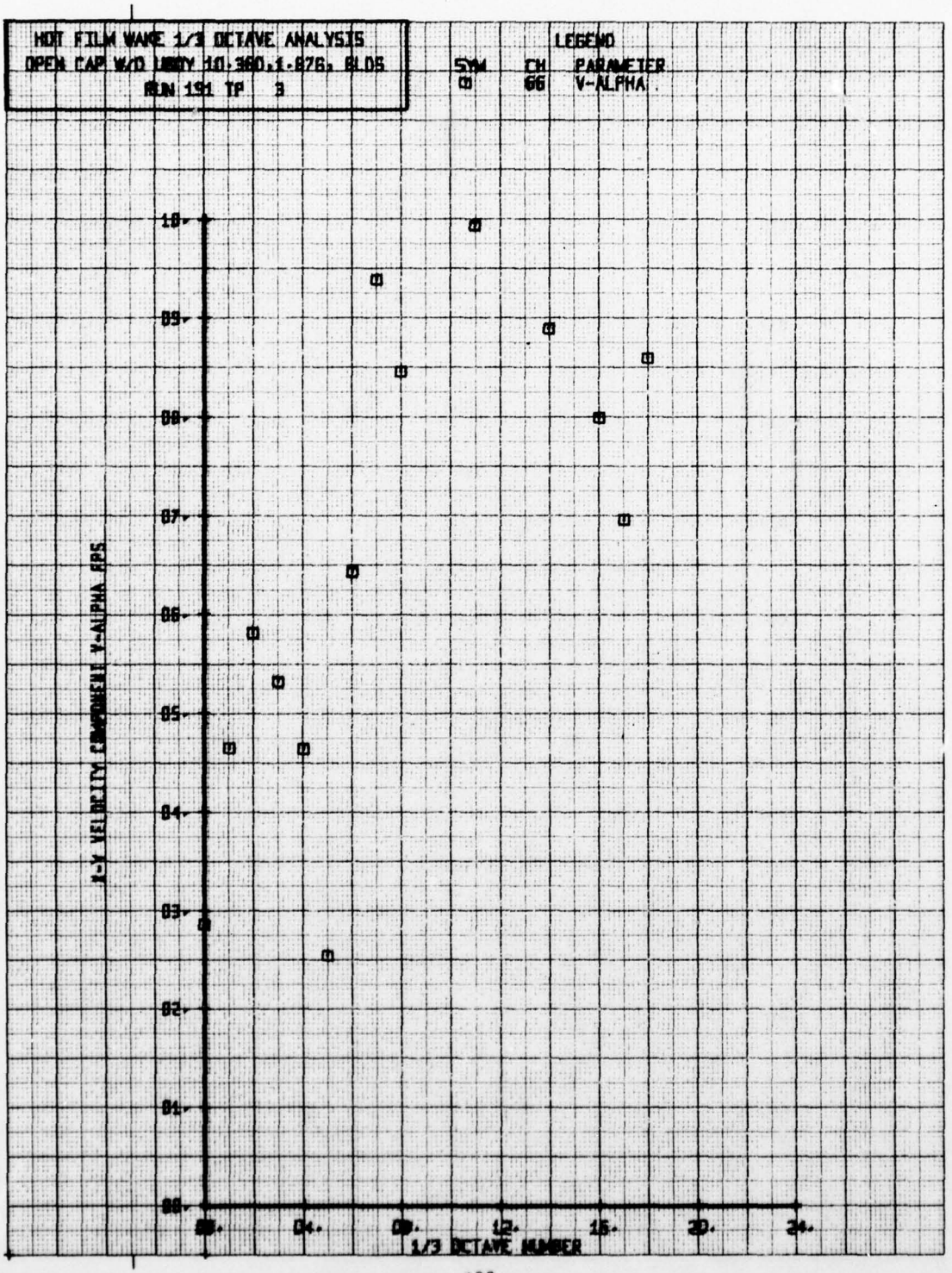

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBDY 10.360,1.87G, BL05
RUN 191 TP 5
LEGEND
SYM CH PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER

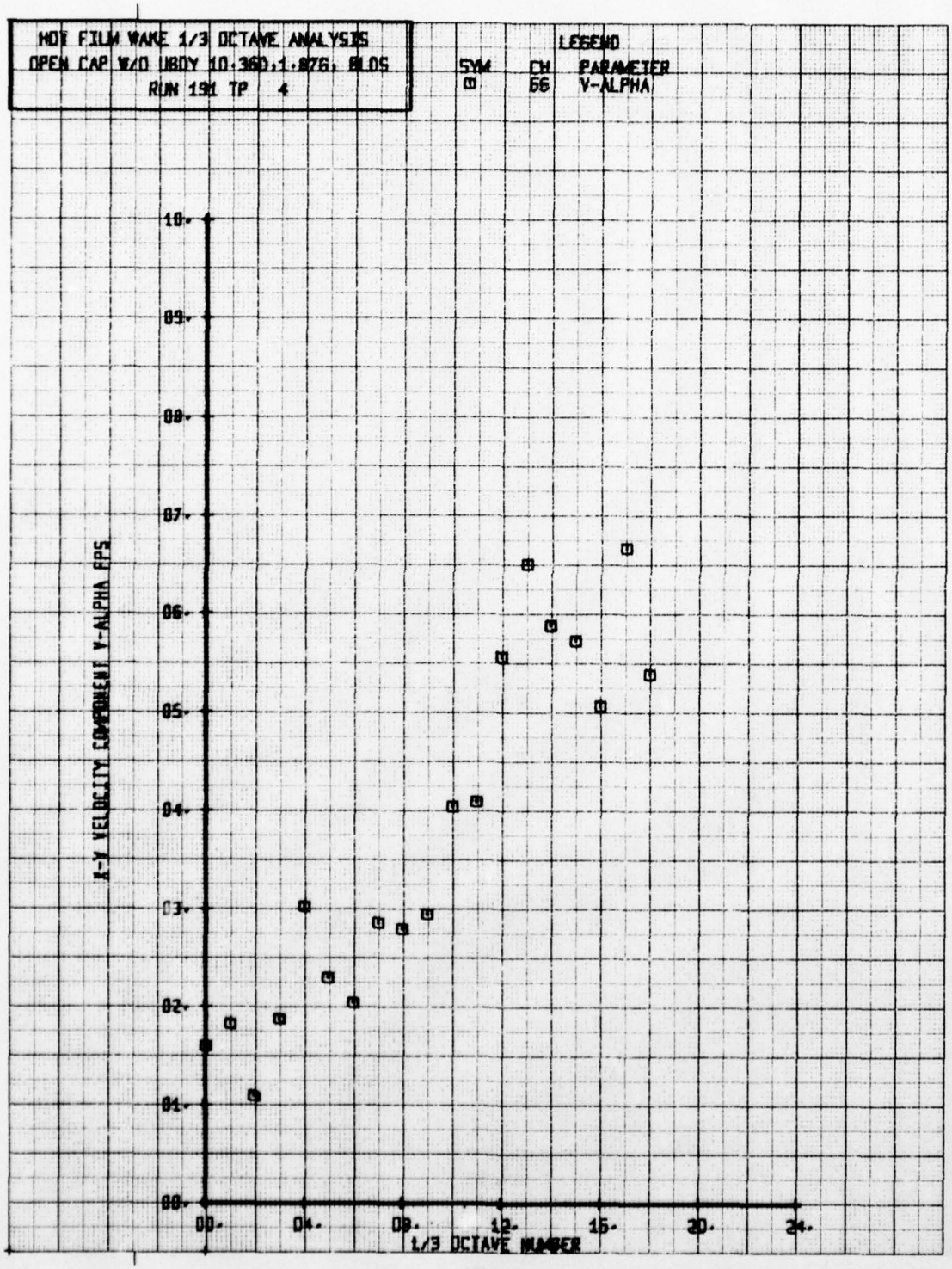

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O BODY 10.360,1.876, BLDS
RUN 151 TP 6
LEGEND
SYM CM PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER

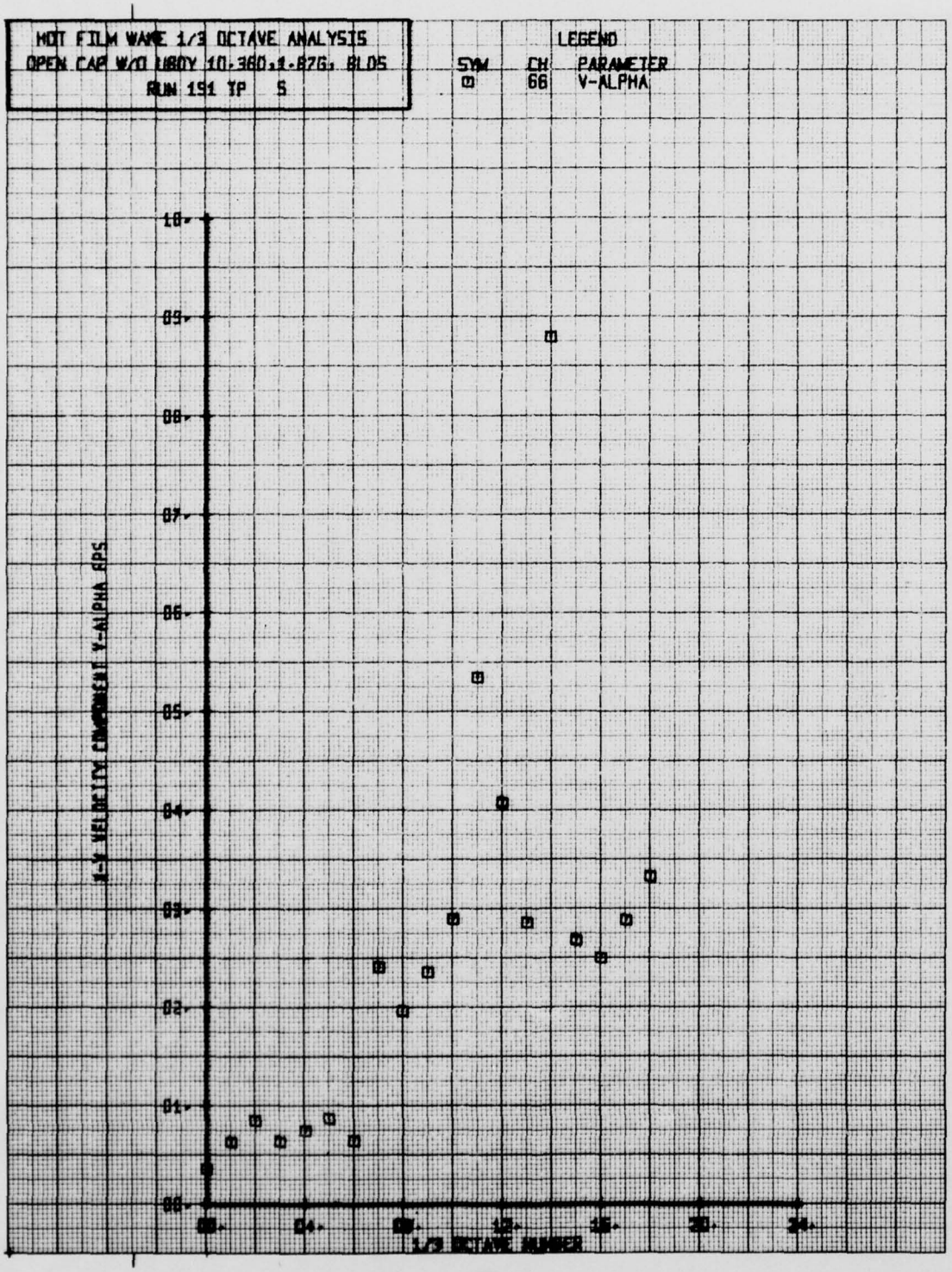

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBDY 10.360,1.876, BLDS
RUN 191 TP 7
LEGEND
SYM CH PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER

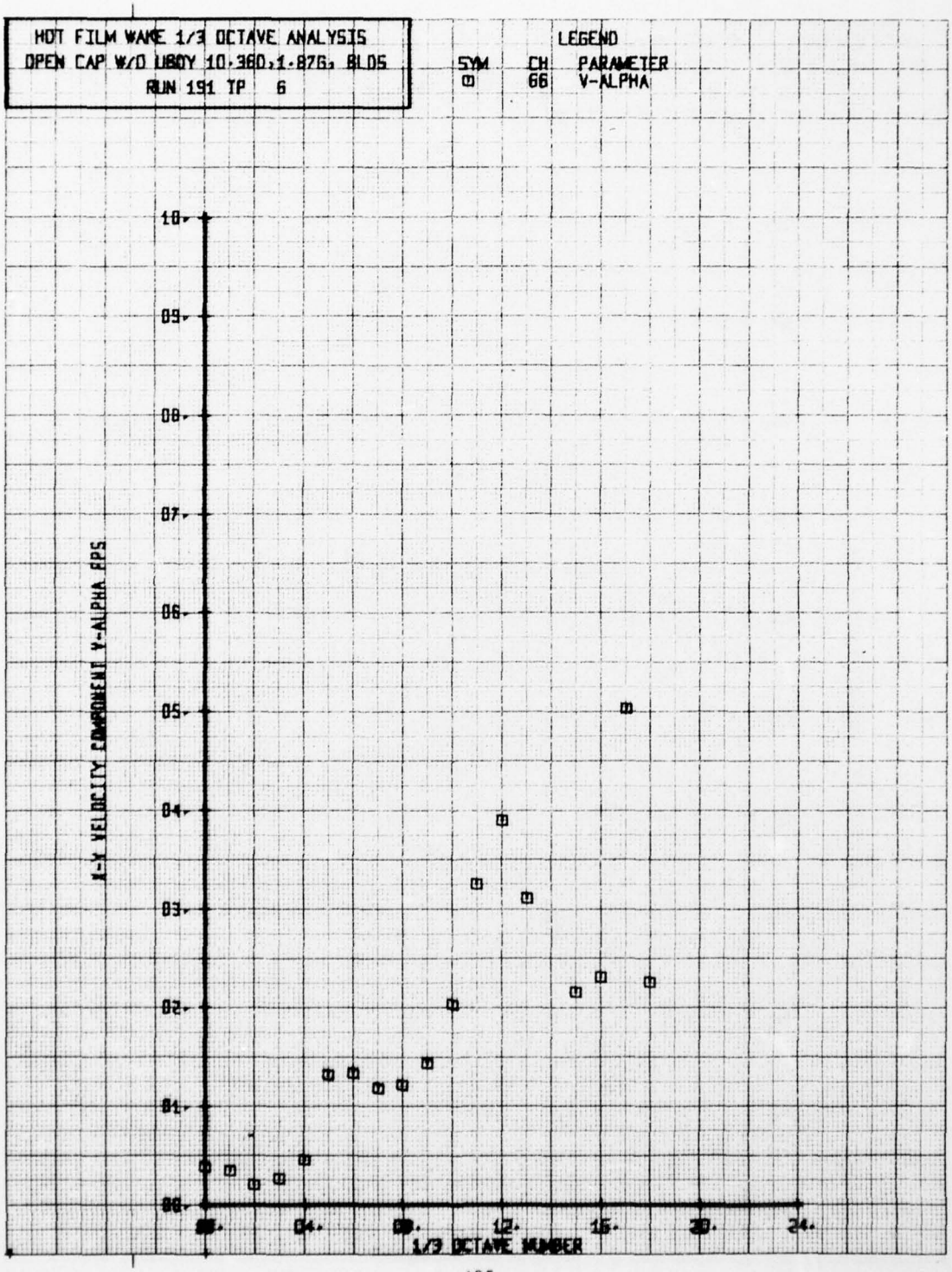

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O HBDY 10.360,1.876, BLDS
RUN 191 TP 9
LEGEND
SYM CH PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER

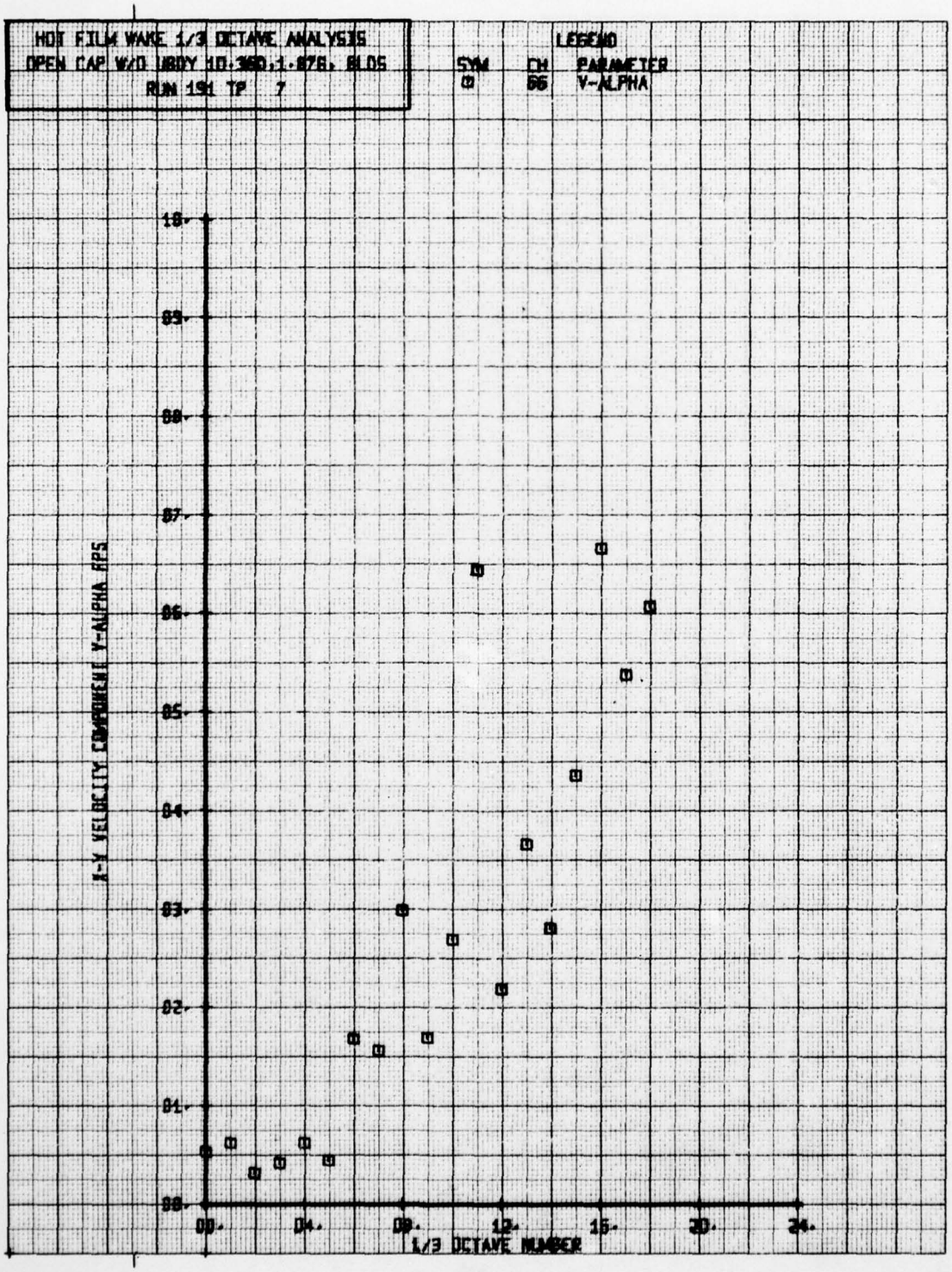

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UNDY 10.360,1.876, BLDS
RUN 191 TP 2
LEGEND
SYM CH PARAMETER
66 V-ALPHA
.90
.91
.92
.93
.94
.95
.96
.97
.98
.99
1.0
A-V VELOCITY COMPONENT V-ALPHA FPS
1/3 OCTAVE NUMBER

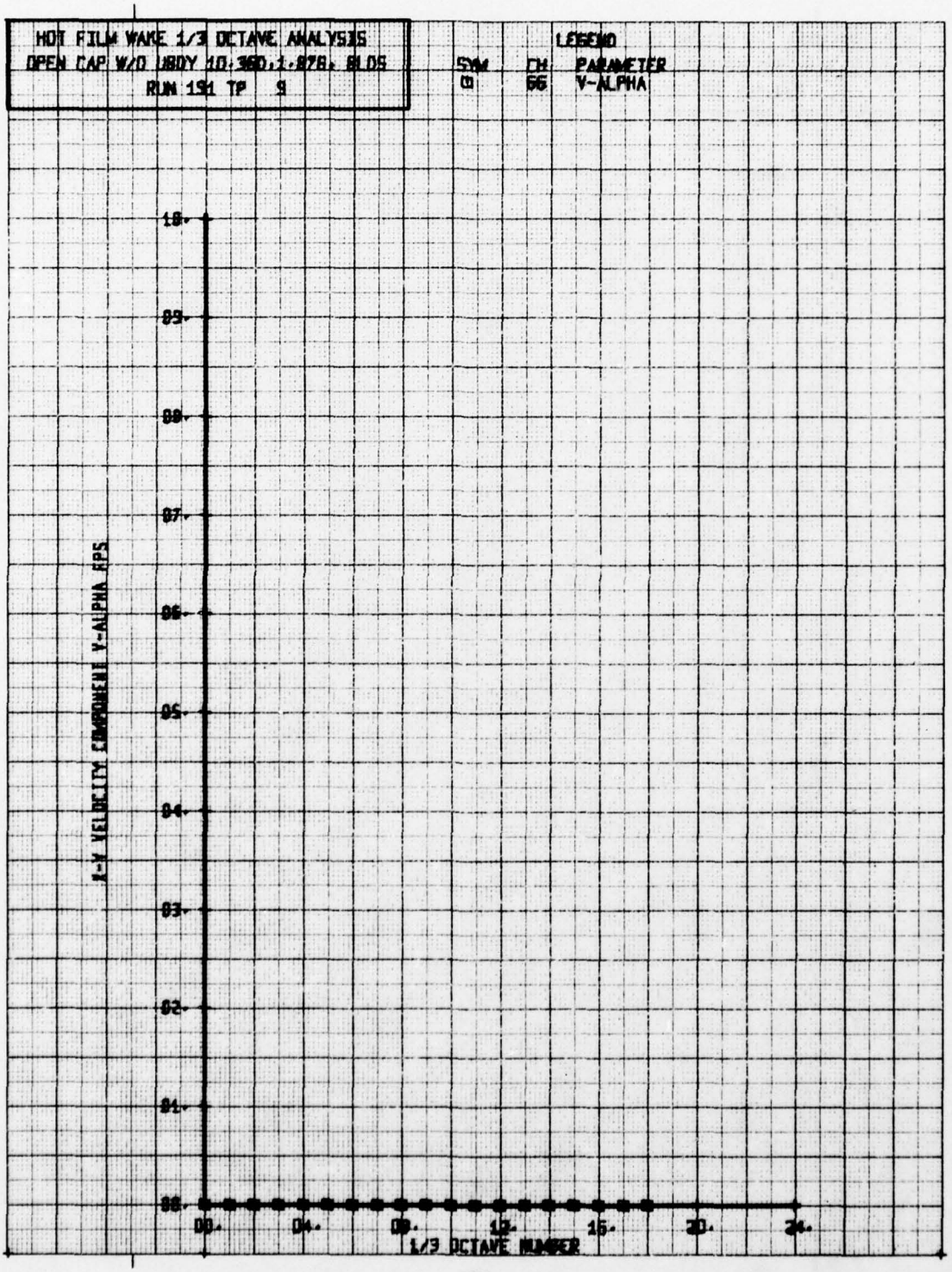

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O LNRTY 10.360,1.876, BLDS
RUN 191 TP 3
LEGEND
SYM CH PARAMETER
66 V-ALPHA
1.0
.9
.8
.7
.6
.5
.4
.3
.2
.1
.0
00.
04.
08.
12.
16.
20.
24.
1/3 OCTAVE NUMBER

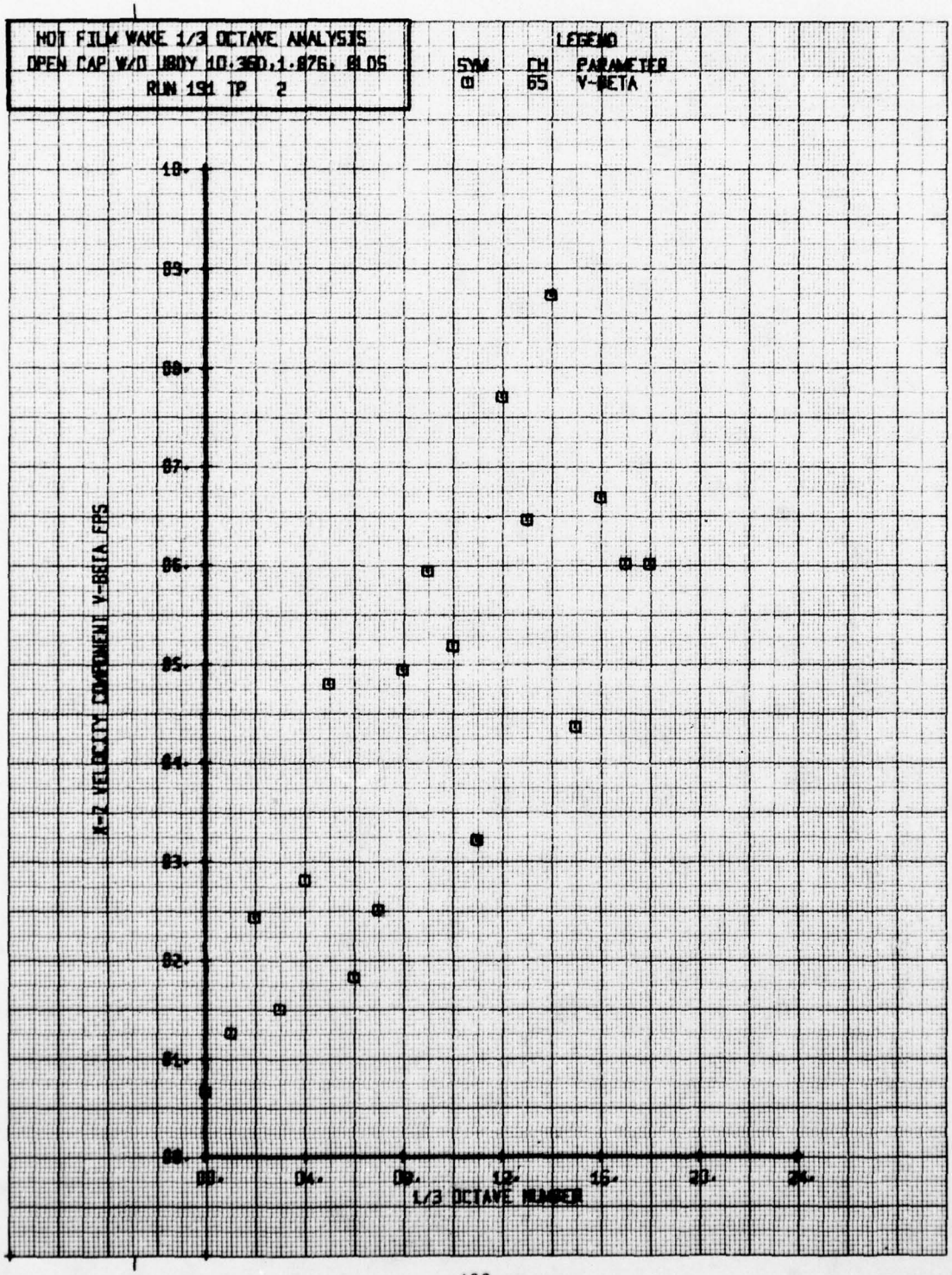

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBDY 10.36D,1.87G, 8LOS
RUN 191 TP 4
LEGEND
SYM CH PARAMETER
66 V-ALPHA
10.
09.
08.
07.
06.
05.
04.
03.
02.
01.
00.
X-Y VELOCITY COMPONENT V-ALPHA FPS
00.
04.
08.
12.
16.
20.
24.
1/3 OCTAVE NUMBER

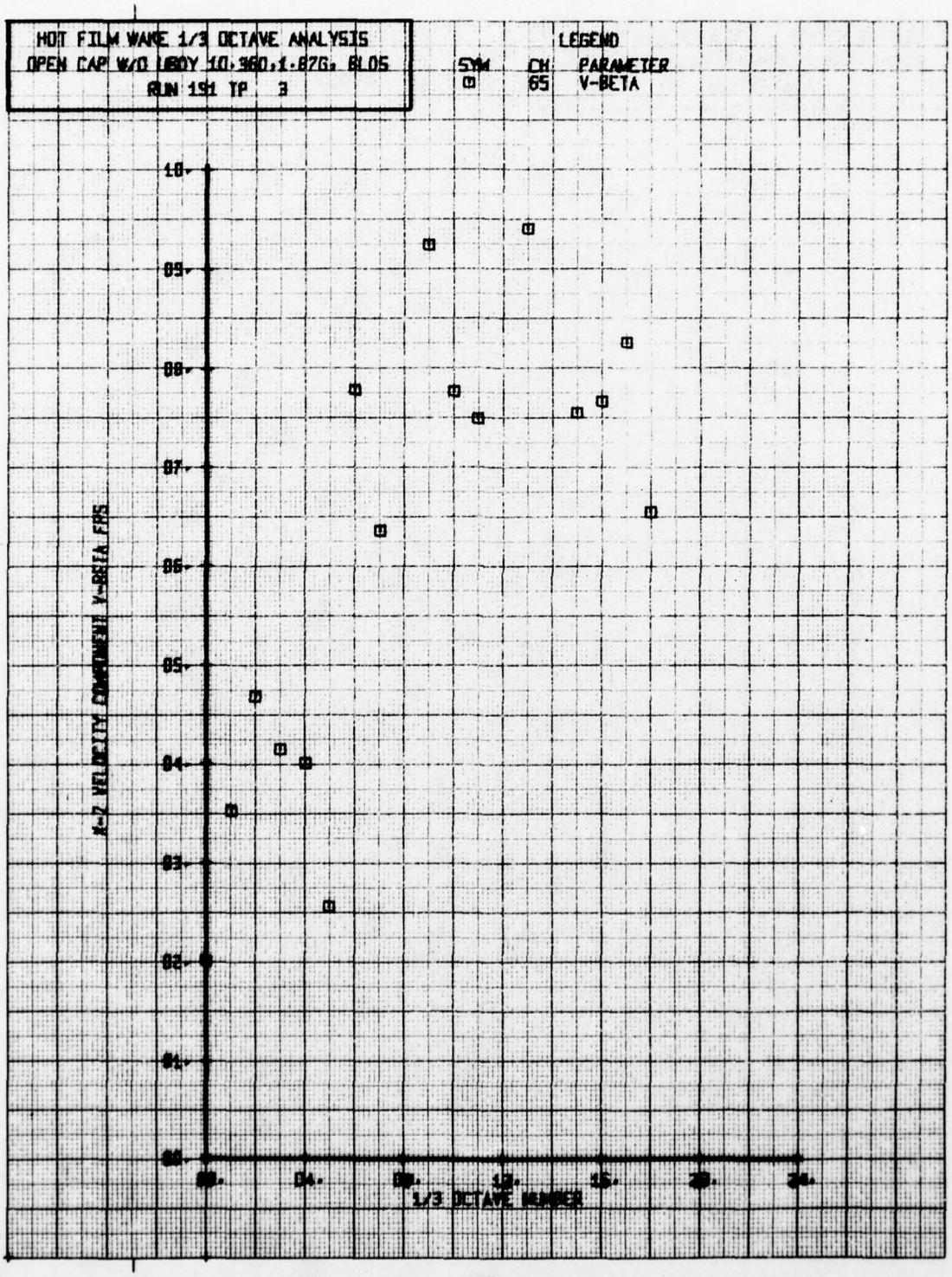

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O LIBDY 10.360,1.876, BLDS
RUN 191 TP 5
LEGEND
SYM CH PARAMETER
66 V-ALPHA
1.0
.9
.8
.7
.6
.5
.4
.3
.2
.1
.0
.4
1.0
1.5
2.0
2.4
1/3 OCTAVE NUMBER

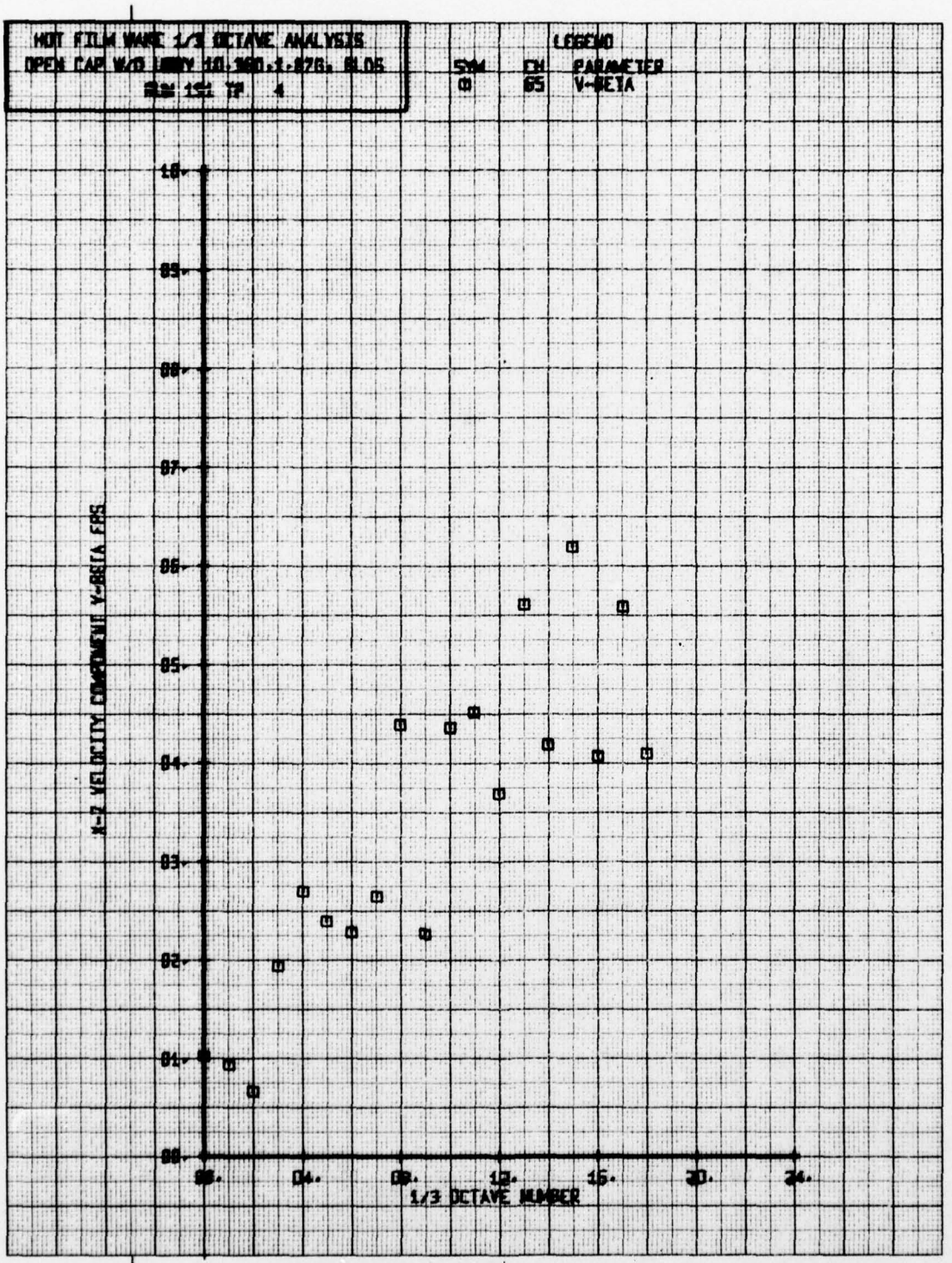

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY 10.360,1.876, BLDS
RUN 191 TP 6
LEGEND
SYM CH PARAMETER
66 V-ALPHA
10.
09.
08.
07.
06.
05.
04.
03.
02.
01.
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X-X VELOCITY COMPONENT V-ALPHA FPS
04.
08.
12.
16.
20.
24.
1/3 OCTAVE NUMBER

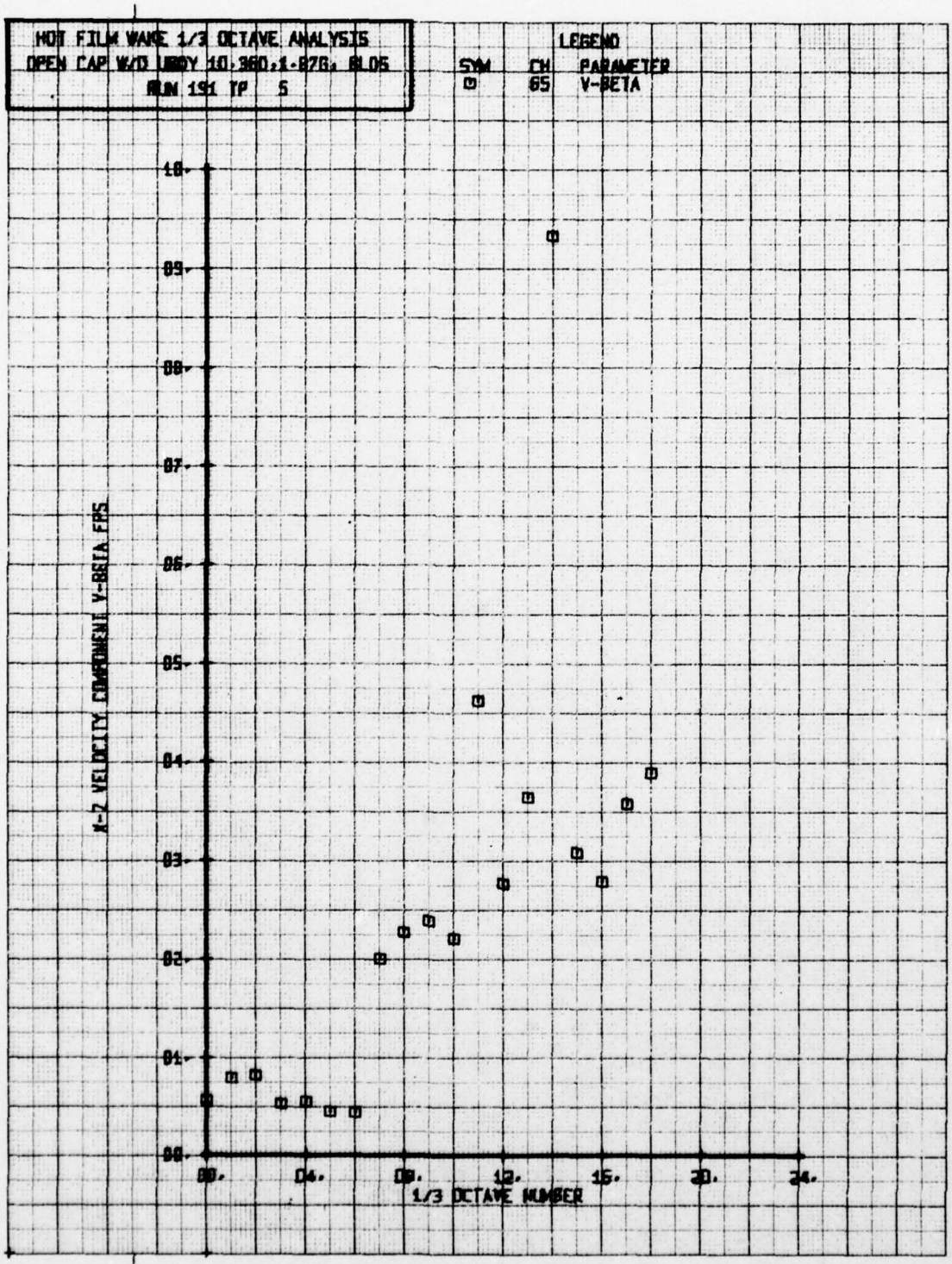

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBODY 10.360,1.876, BLDS
RUN 191 TP 7
LEGEND
SYM CH PARAMETER
66 V-ALPHA
X-Y VELOCITY COMPONENT V-ALPHA RPS
1/3 OCTAVE NUMBER
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04.
08.
12.
16.
20.
24.

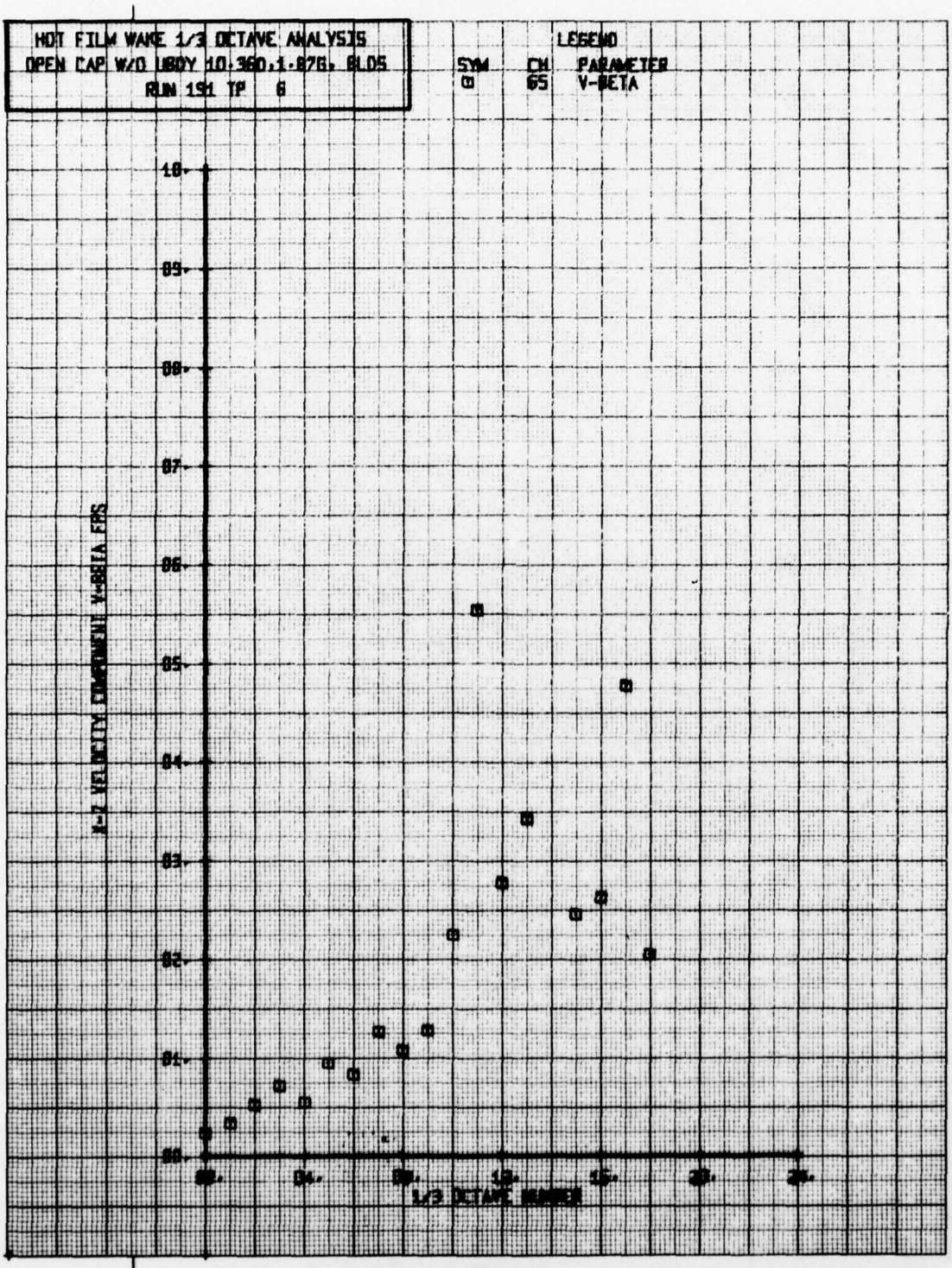

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O BODY 10.360,1.878, BLDS
RUN 191 TP 9
LEGEND
SYM CH PARAMETER
66 V-ALPHA
18.
89.
88.
87.
86.
85.
84.
83.
82.
81.
80.
00.
04.
08.
12.
16.
20.
24.
1/3 OCTAVE NUMBER
X-V VELOCITY COMPONENT V-ALPHA FPS

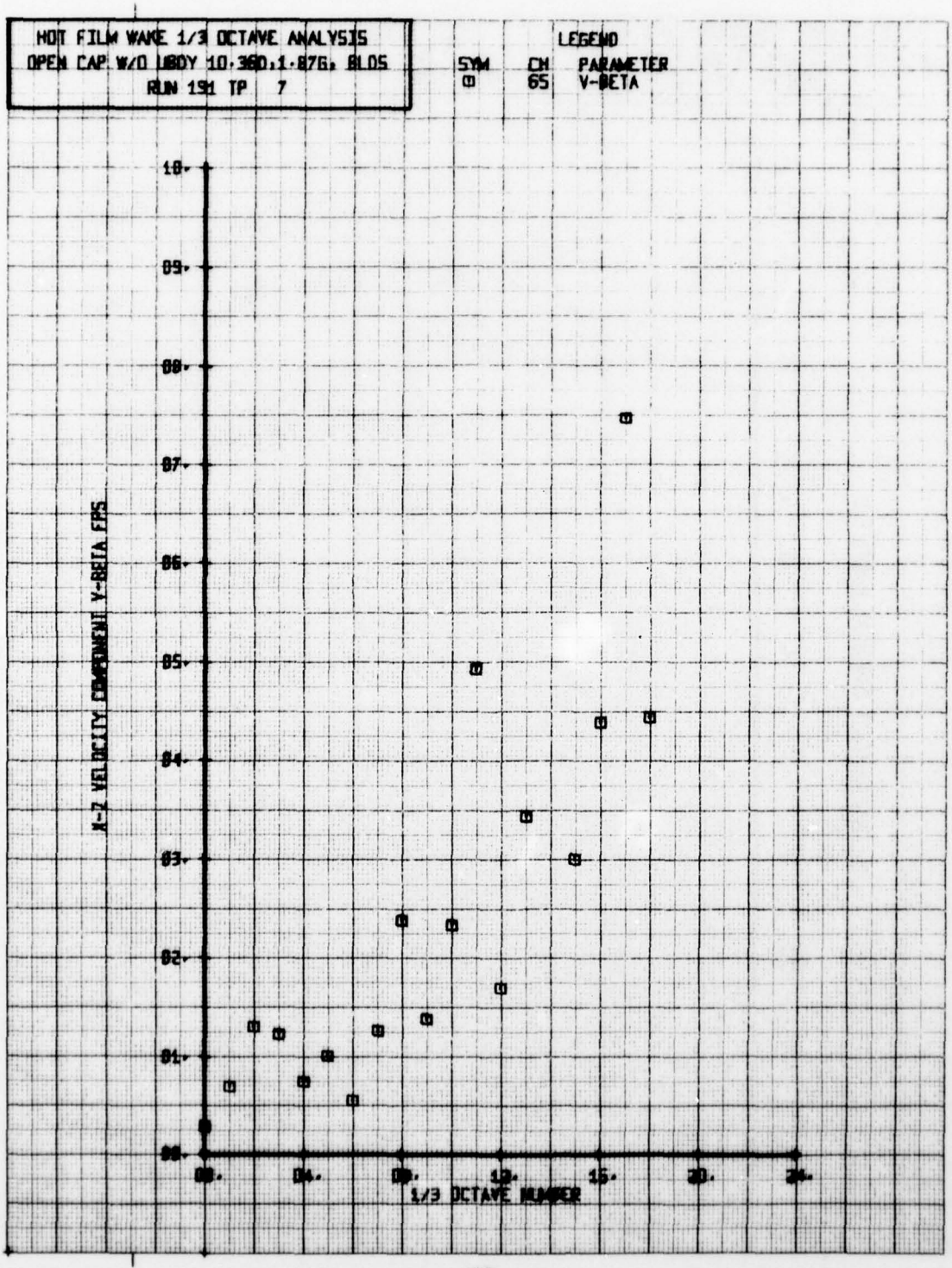

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY 10.360,1.876, 0.05
RUN 191 TP 2
LEGEND
SYM CH PARAMETER
65 V-BETA
18.
89.
88.
87.
86.
85.
84.
83.
82.
81.
80.
X-Z VELOCITY COMPONENT V-BETA FPS
04.
08.
12.
16.
20.
24.
1/3 OCTAVE NUMBER

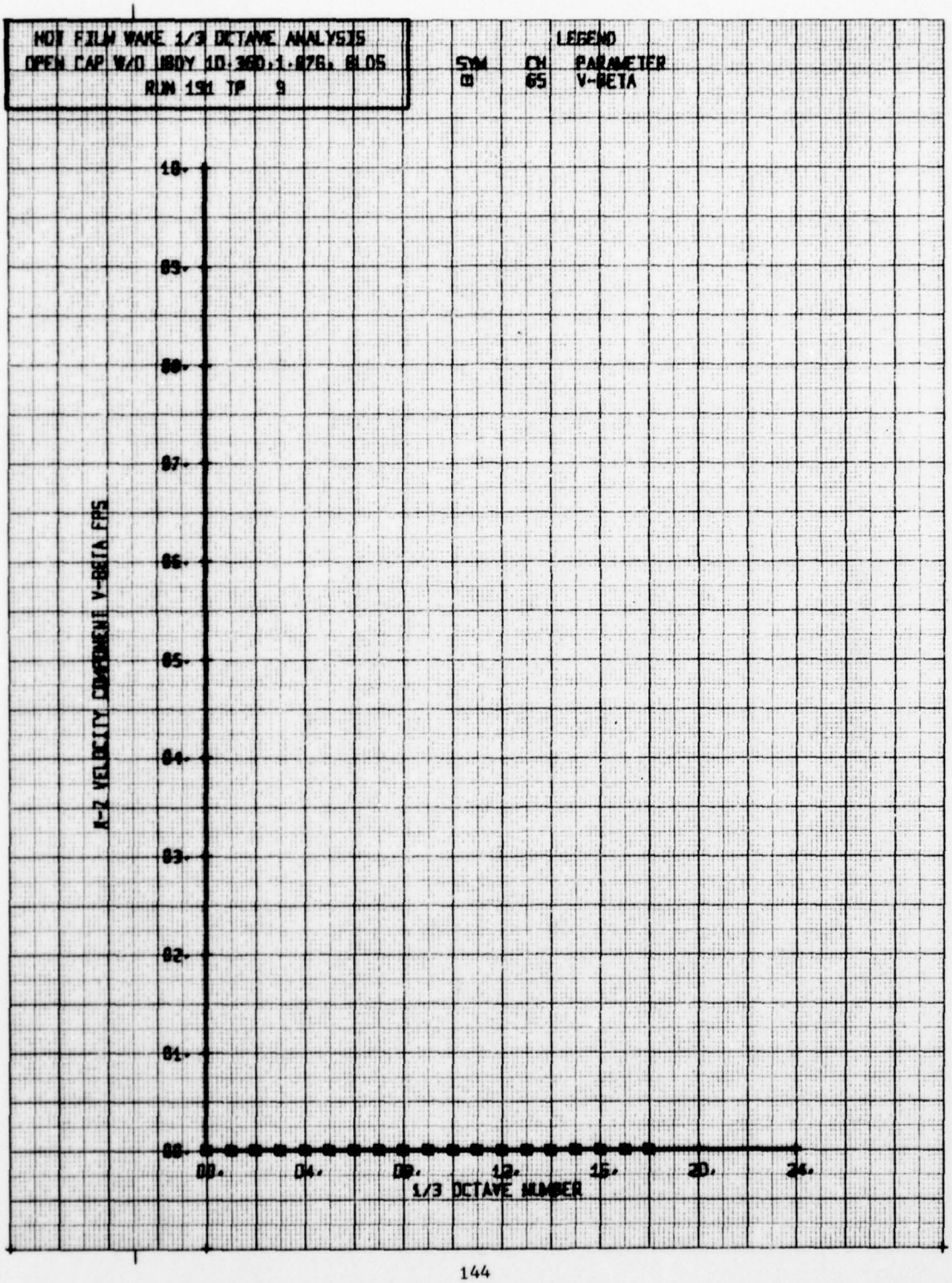

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY 10.360,1.87G, BLOS
RUN 191 TP 3
LEGEND
SYM CH PARAMETER
65 V-BETA
K=2 VELOCITY COMPONENT V-BETA FPS
1/3 OCTAVE NUMBER

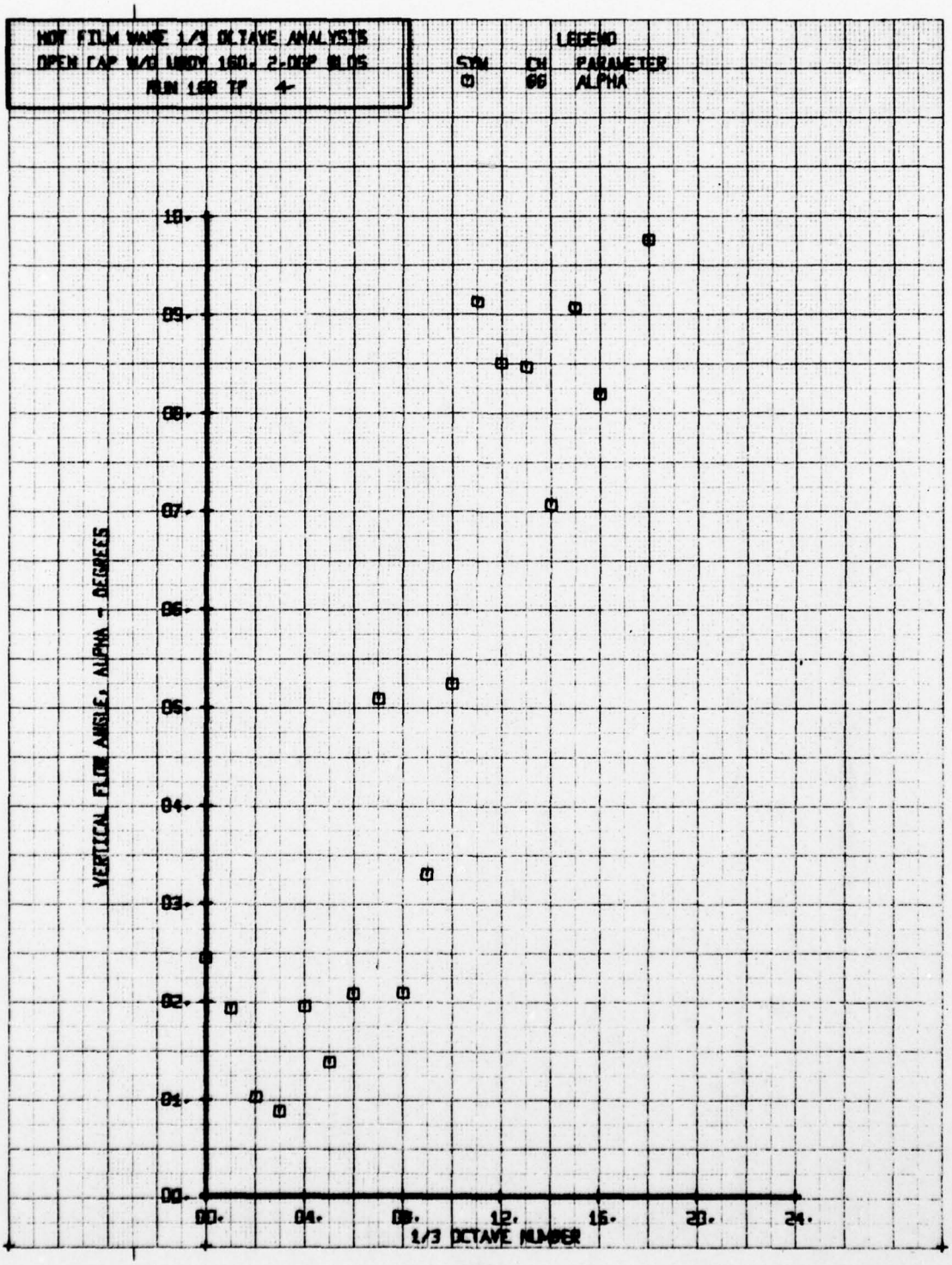

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O
LEGEND
SYM CH PARAMETER
65 V-BETA
X-Z VELOCITY COMPONENT V-BETA FRS
1/3 OCTAVE NUMBER

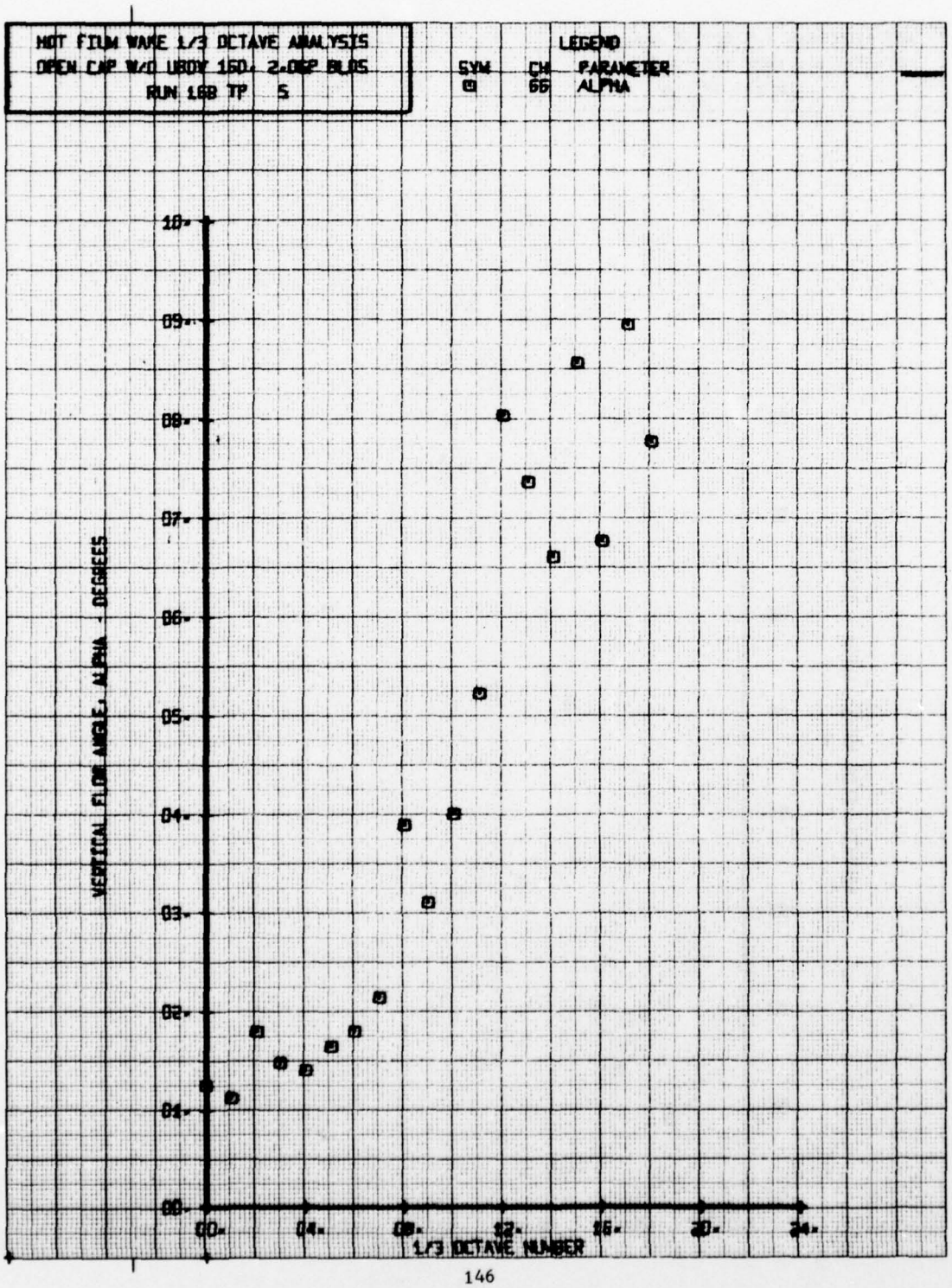

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O BODY 10,360,1-87G, BL05
RUN 191 TP 5
LEGEND
SYM CH PARAMETER
65 V-BETA
K-Z VELOCITY COMPONENT V-BETA FRS
1/3 OCTAVE NUMBER

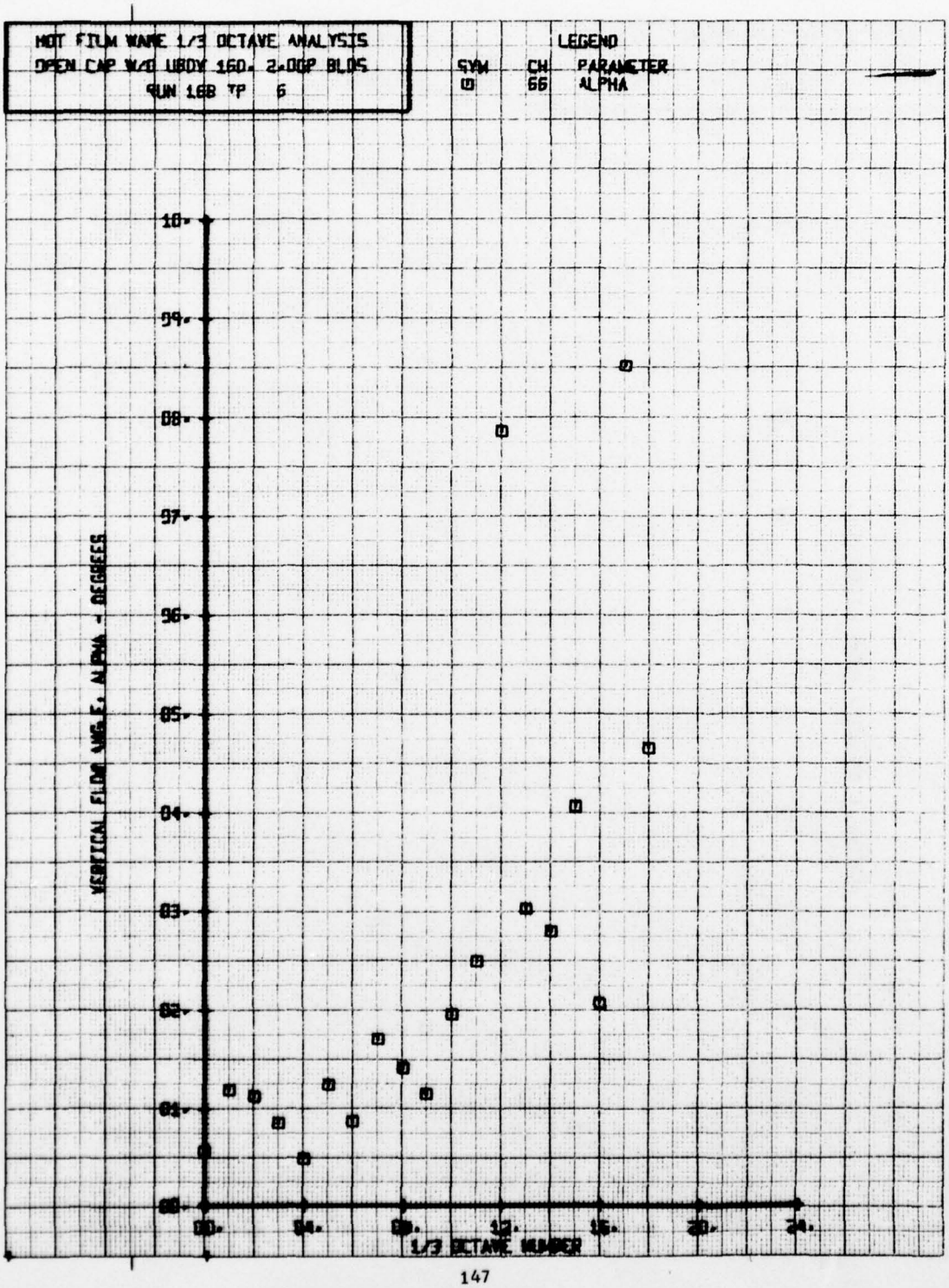

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBDY 10.360,1.876, BLDS
RUN 191 TP 6
LEGEND
SYM CH PARAMETER
65 V-BETA
1.0
.9
.8
.7
.6
.5
.4
.3
.2
.1
.0
X-Z VELOCITY COMPONENT V+BETA FPS
1/3 OCTAVE NUMBER

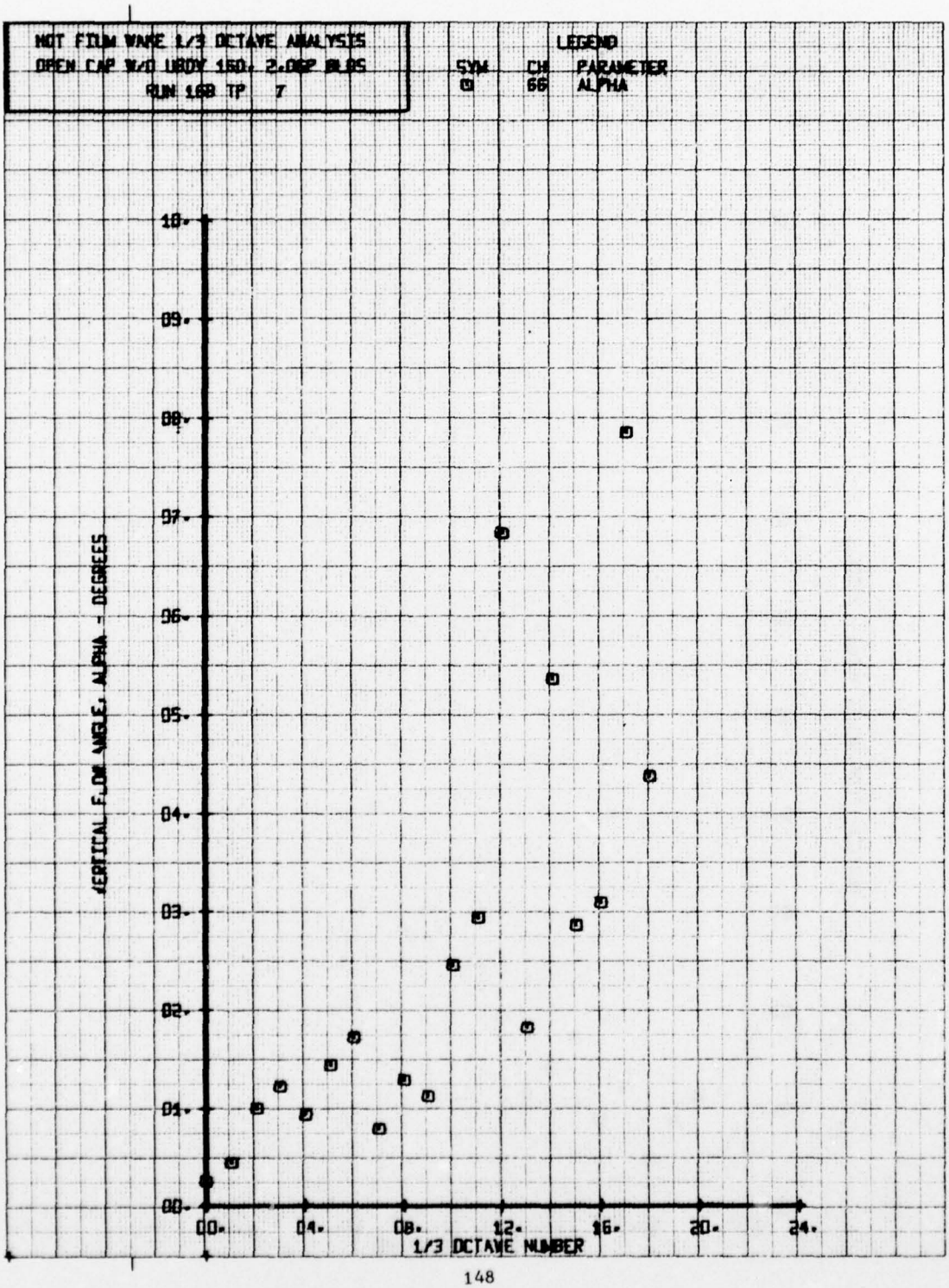

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBDY 10.360,1.876, BLDS
RUN 191 TP 7
LEGEND
SYM CH PARAMETER
65 V-BETA
X-Z VELOCITY COMPONENT V-BETA FPS
1/3 OCTAVE NUMBER

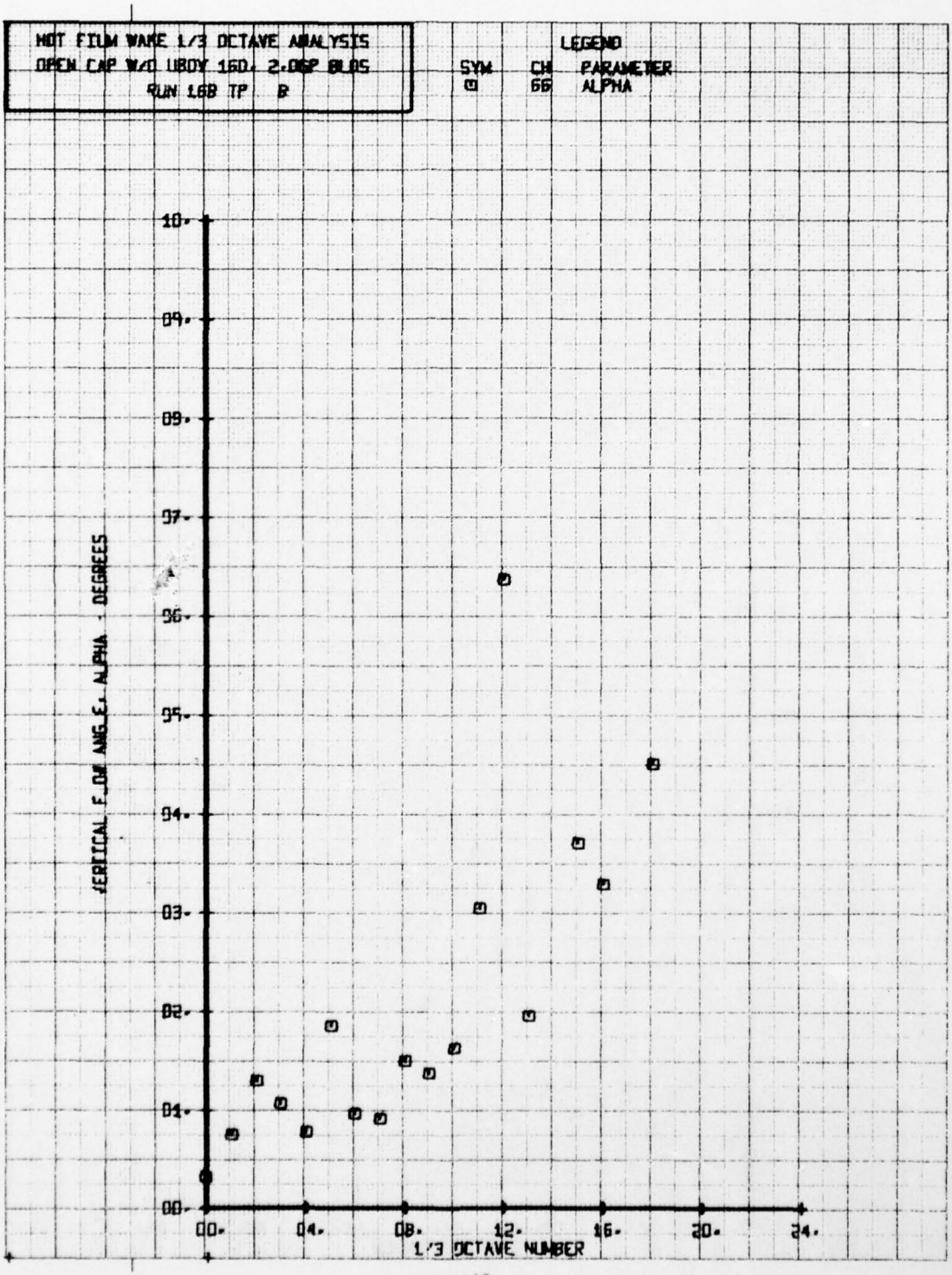

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O HBOY 10.36D,1.876, BLDS
RUN 151 TP 9
LEGEND
SYM CH PARAMETER
65 V-BETA
18.
85.
86.
87.
86.
85.
84.
83.
82.
81.
80.
K-2 VELOCITY COMPONENT V-BETA FPS
00. 04. 08. 12. 16. 20. 24.
1/3 OCTAVE NUMBER

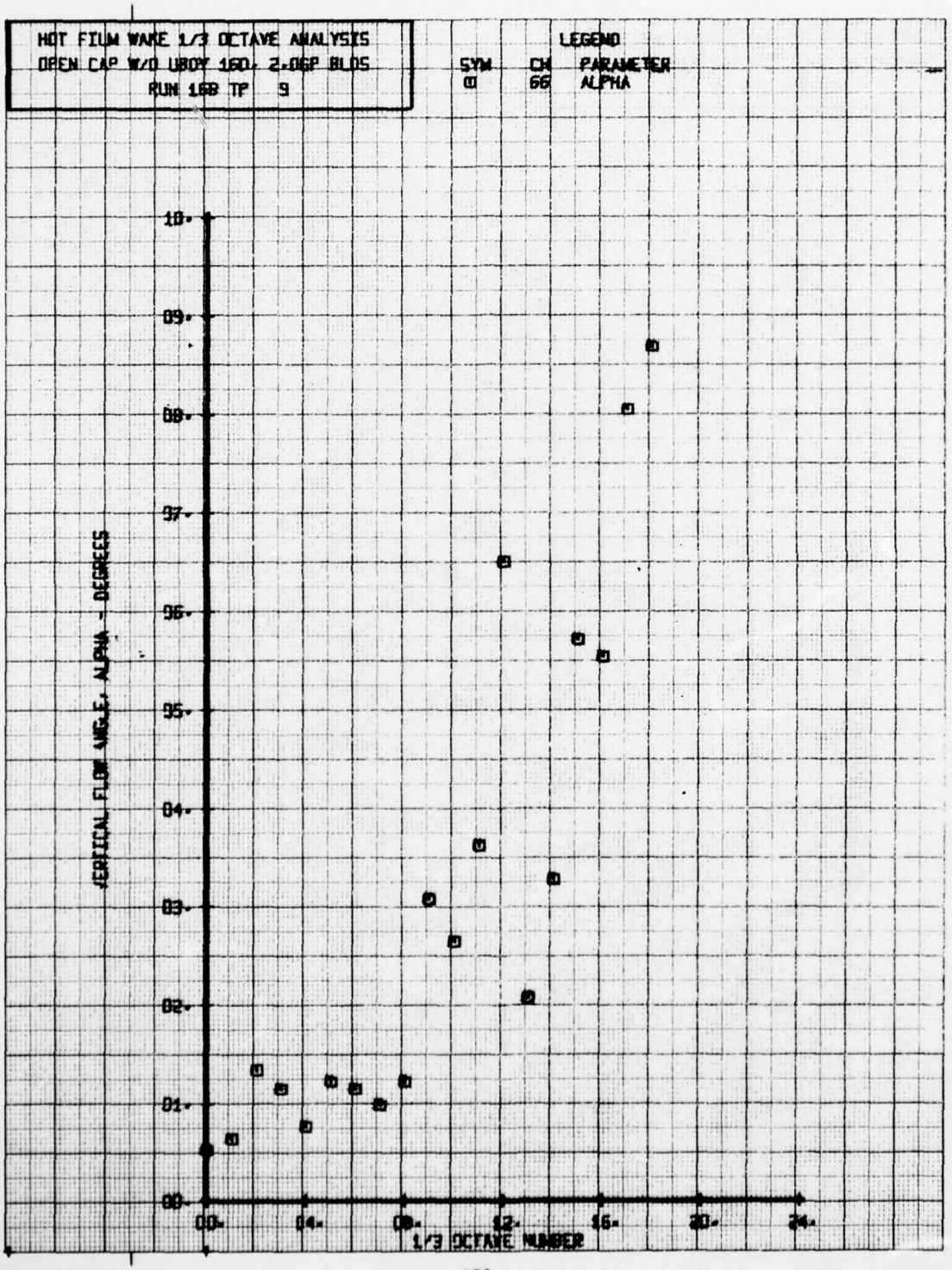

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UNDY 160. 2-DEP BLDS
RUN 168 TP 4-
LEGEND
SYM CH PARAMETER
06 ALPHA
10.
09.
08.
07.
06.
05.
04.
03.
02.
01.
00.
00. 04. 08. 12. 16. 20. 24.
1/3 OCTAVE NUMBER
VERTICAL FLOW ANGLE, ALPHA - DEGREES

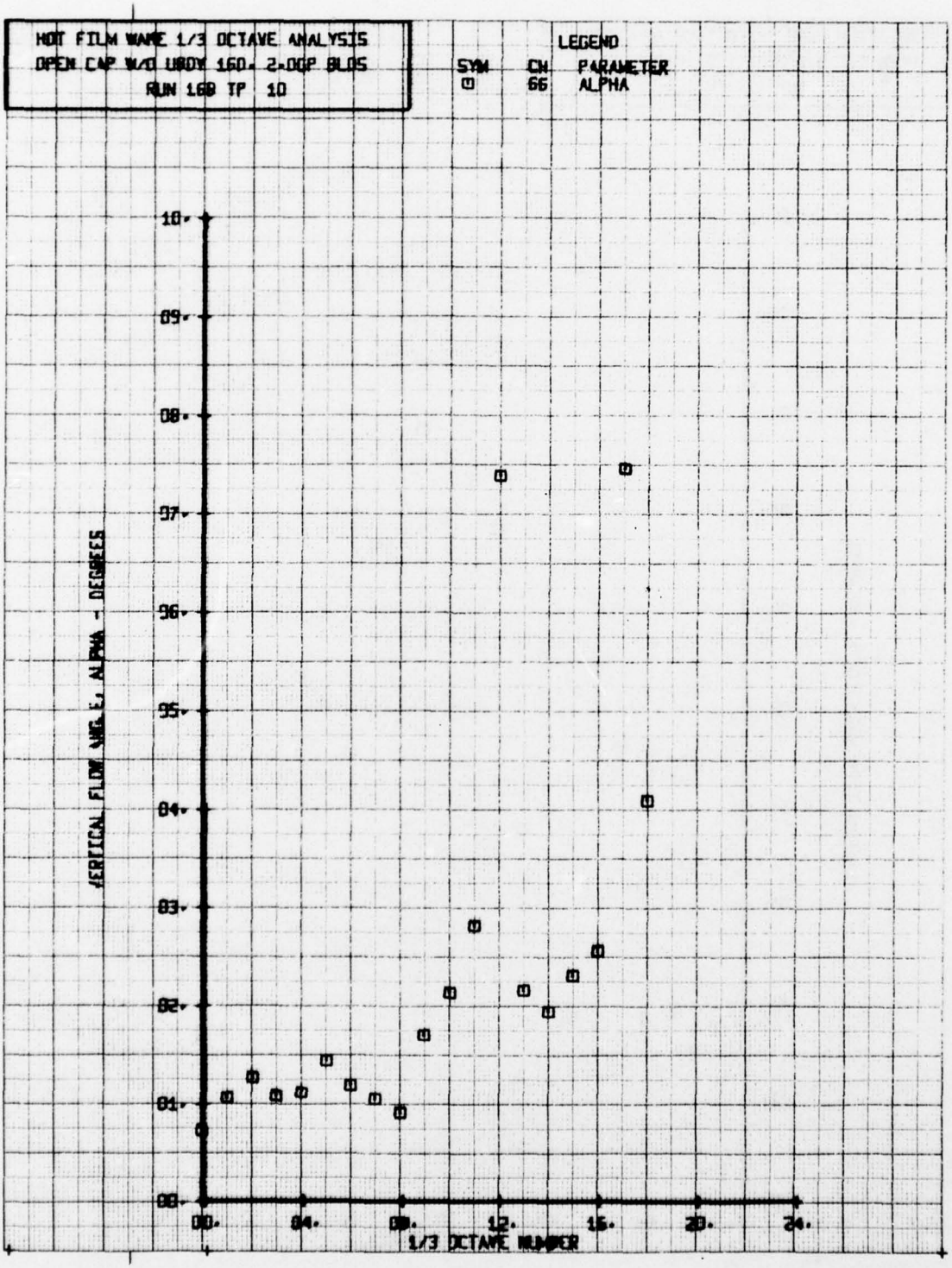

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBODY 160. 2-DEP BLDS
RUN 168 TP 5
LEGEND
SYM CH PARAMETER
66 ALPHA
10.
09.
08.
07.
06.
05.
04.
03.
02.
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00.
VERTICAL FLOW ANGLE, ALPHA - DEGREES
00.
04.
08.
12.
16.
20.
24.
1/3 OCTAVE NUMBER

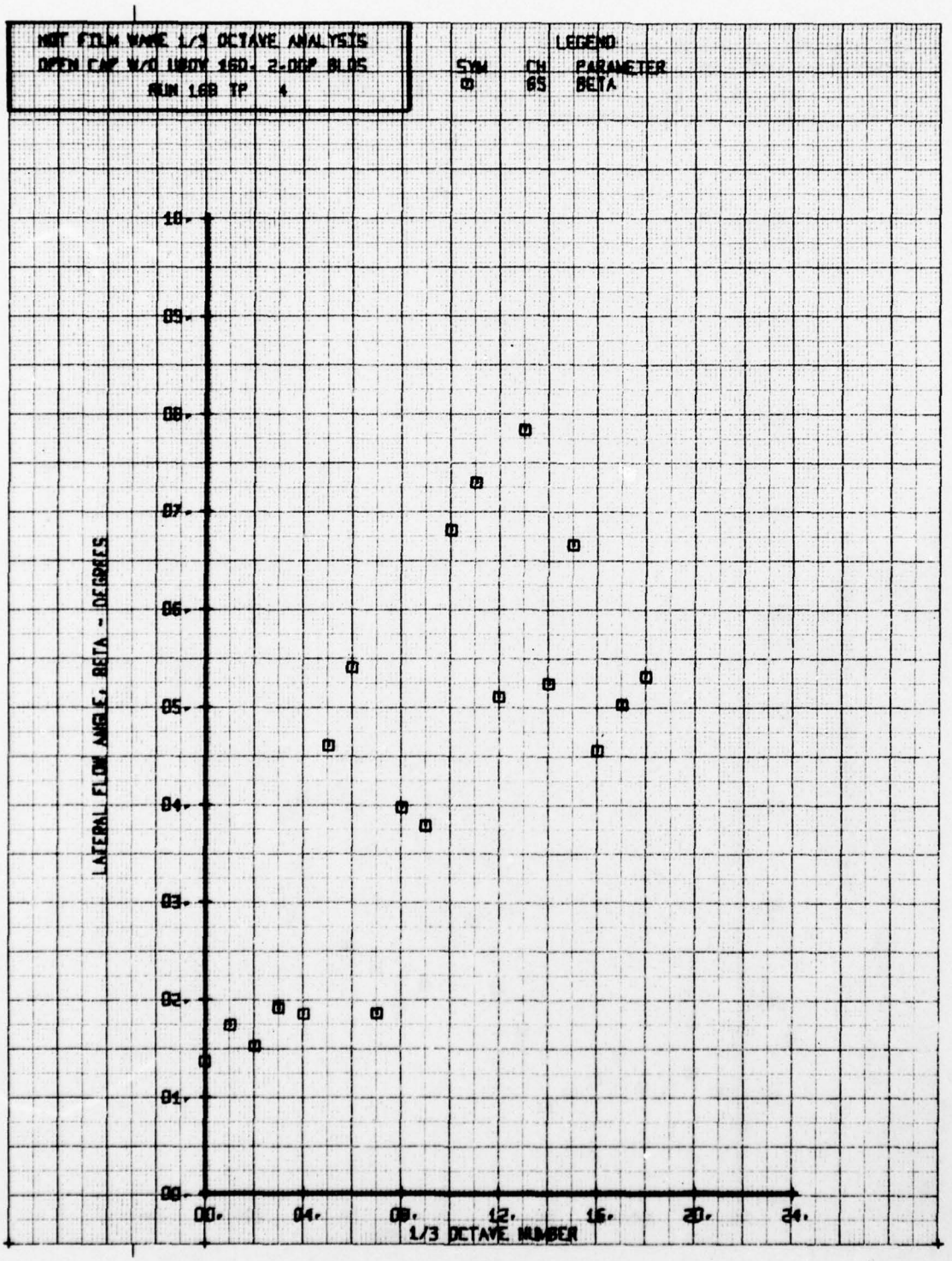

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBDY 160. 2.00P BLDS
RUN 188 TP 6
LEGEND
SYM CH PARAMETER
66 ALPHA
VERTICAL FLOW W.F. ALPHA - DEGREES
1/3 OCTAVE NUMBER

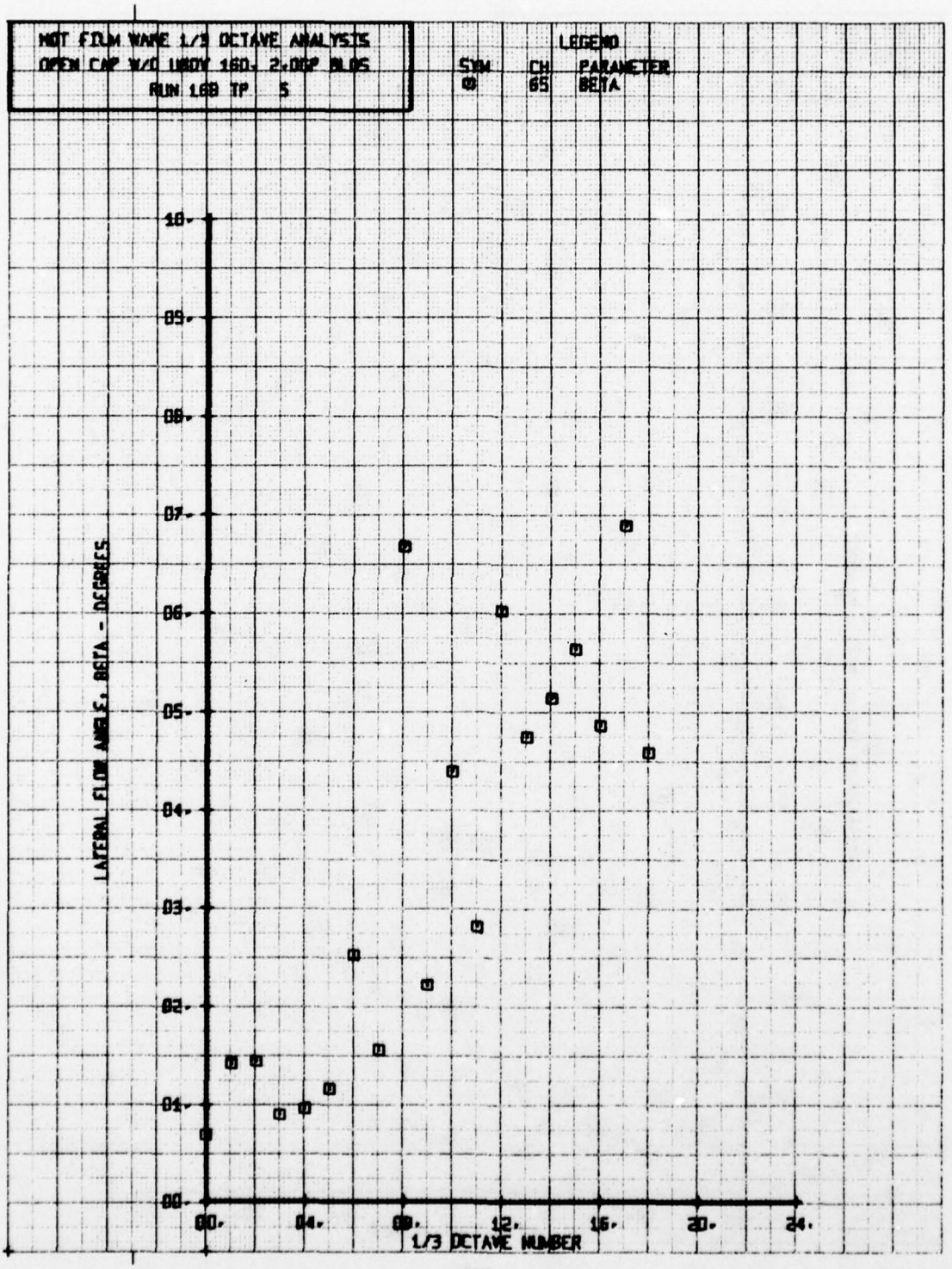

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBDY 150. 2.0SP BLDS
RUN 168 TP 7
LEGEND
SYM CH PARAMETER
66 ALPHA
10.
09.
08.
07.
06.
05.
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VERTICAL FLOW ANGLE, ALPHA - DEGREES
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04.
08.
12.
16.
20.
24.
1/3 OCTAVE NUMBER

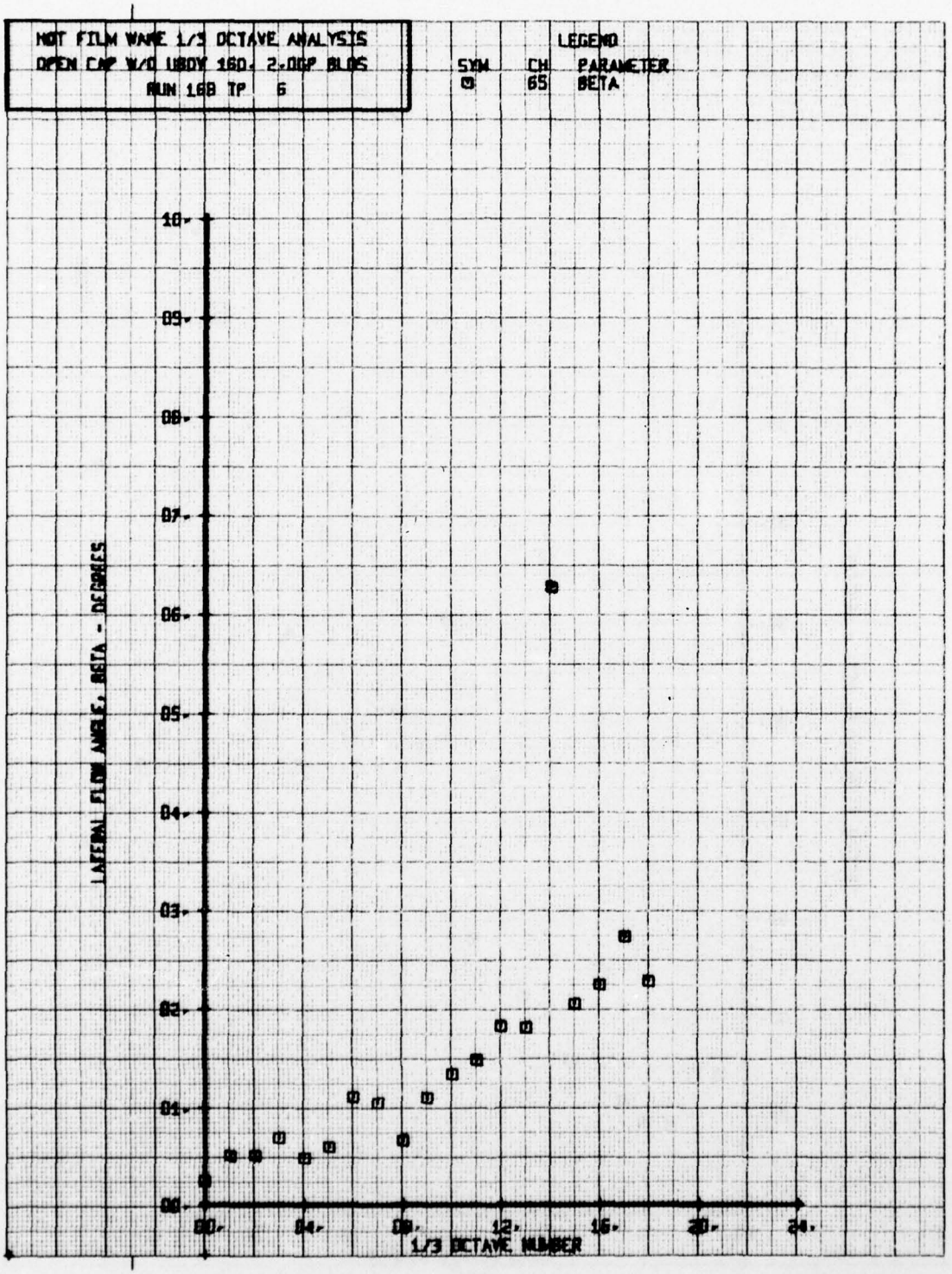

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBODY 160. 2.0GP BLDS
RUN 168 TP B
LEGEND
SYM CH PARAMETER
66 ALPHA
10.
09.
09.
07.
06.
05.
04.
03.
02.
01.
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VERTICAL FLOW ANGLE, ALPHA - DEGREES
00.
04.
08.
12.
16.
20.
24.
1/3 OCTAVE NUMBER

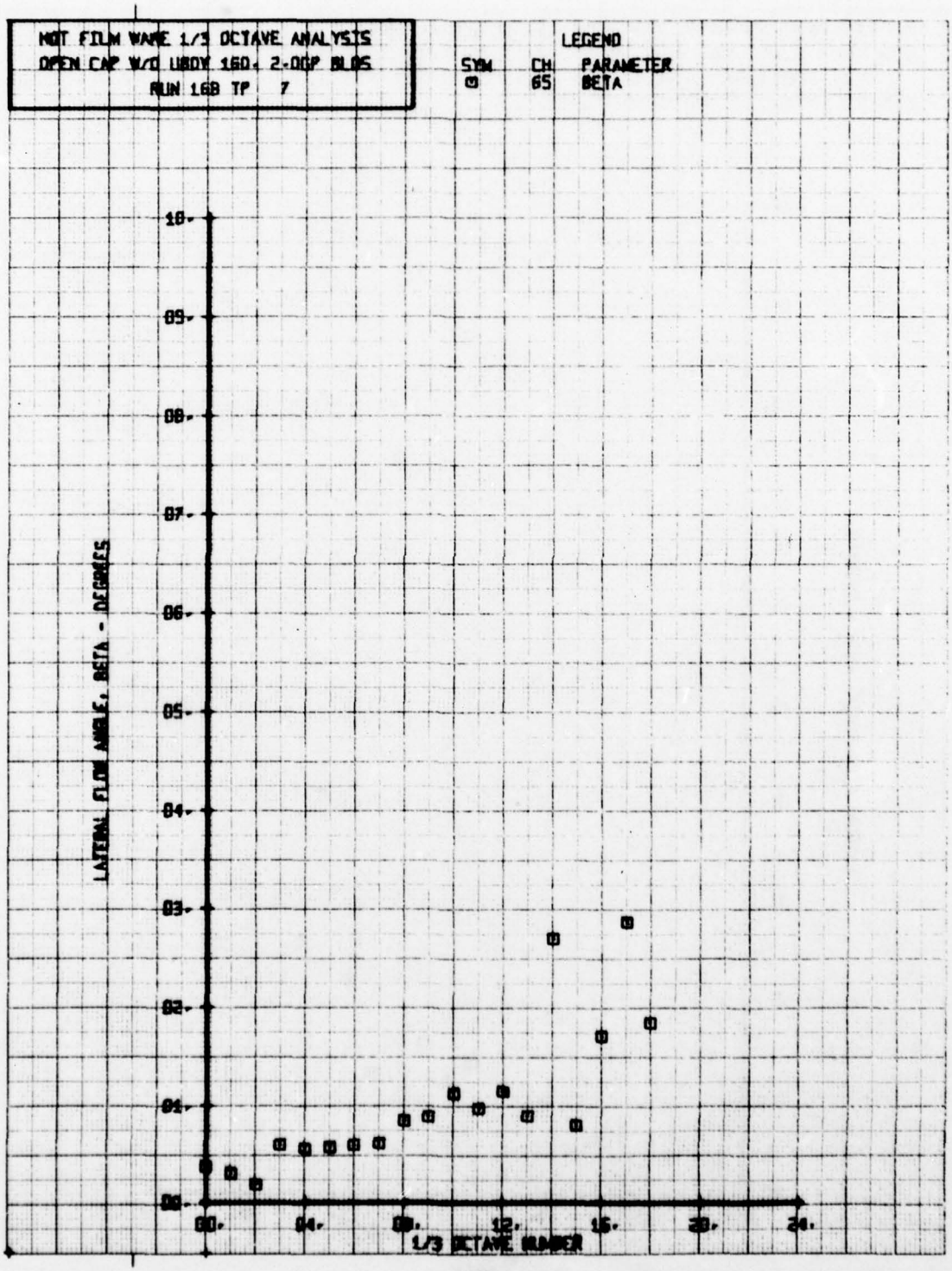

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY 160. 2.0GP BLDS
RUN 168 TP 9
LEGEND
SYM CH PARAMETER
66 ALPHA
10.
09.
08.
07.
06.
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16.
20.
24.
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

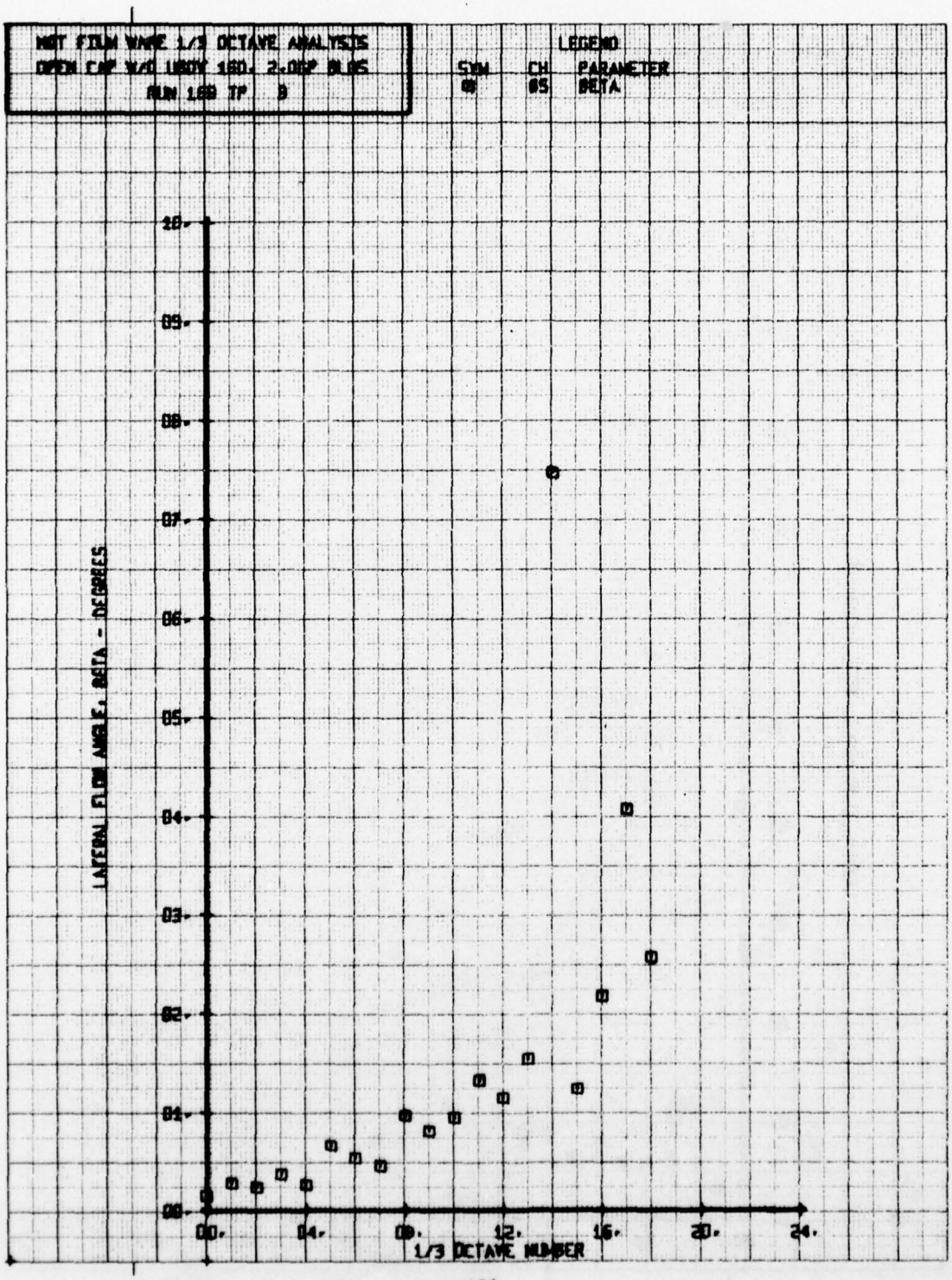

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBDY 160. 2-DGP BLDS
RUN 168 TP 10
LEGEND
SYM CH PARAMETER
66 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

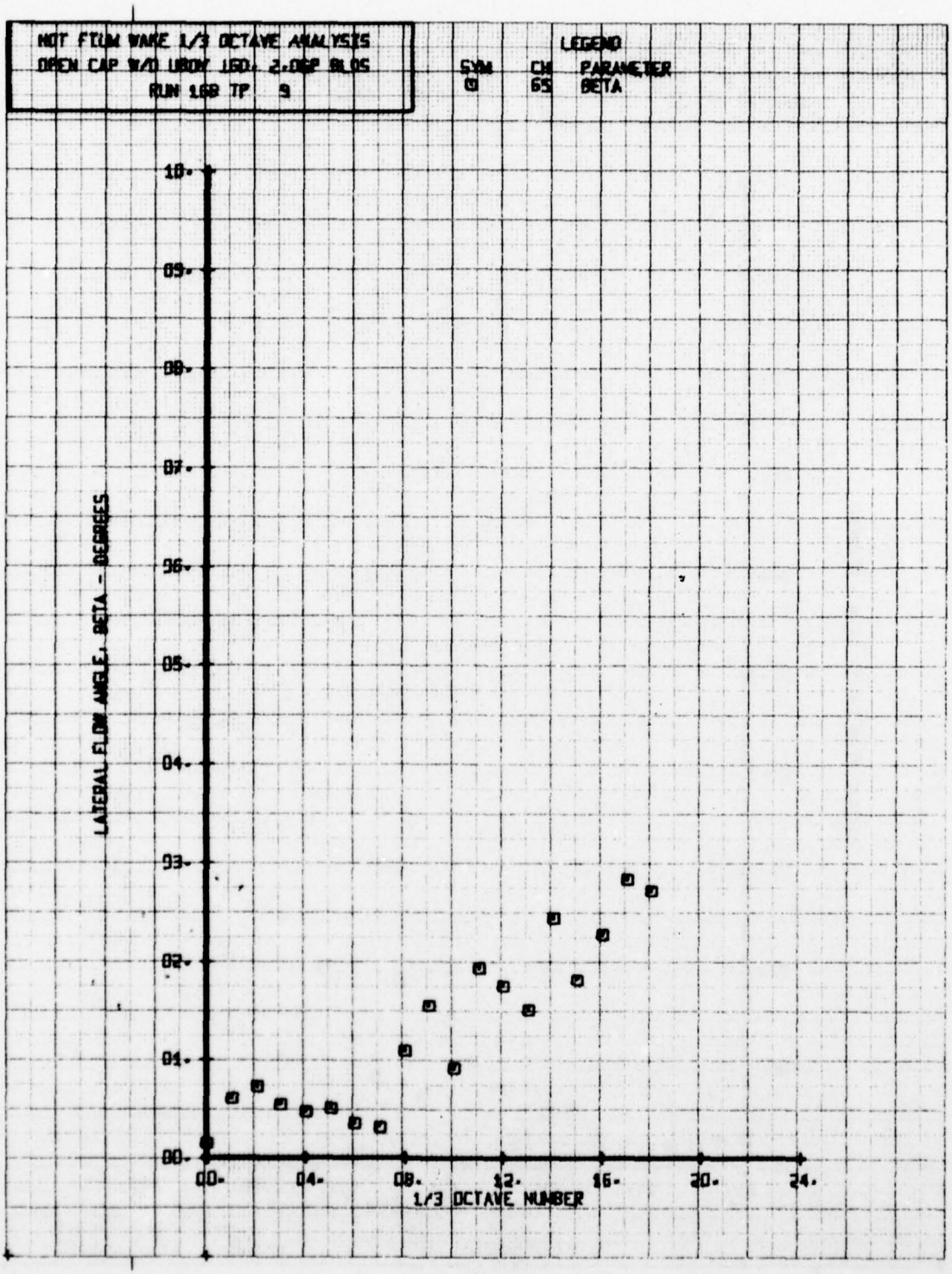

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY 16D. 2-DOP BLDS
RUN 168 TP 4
LEGEND
SYM CH PARAMETER
0 65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER
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04.
08.
12.
16.
20.
24.

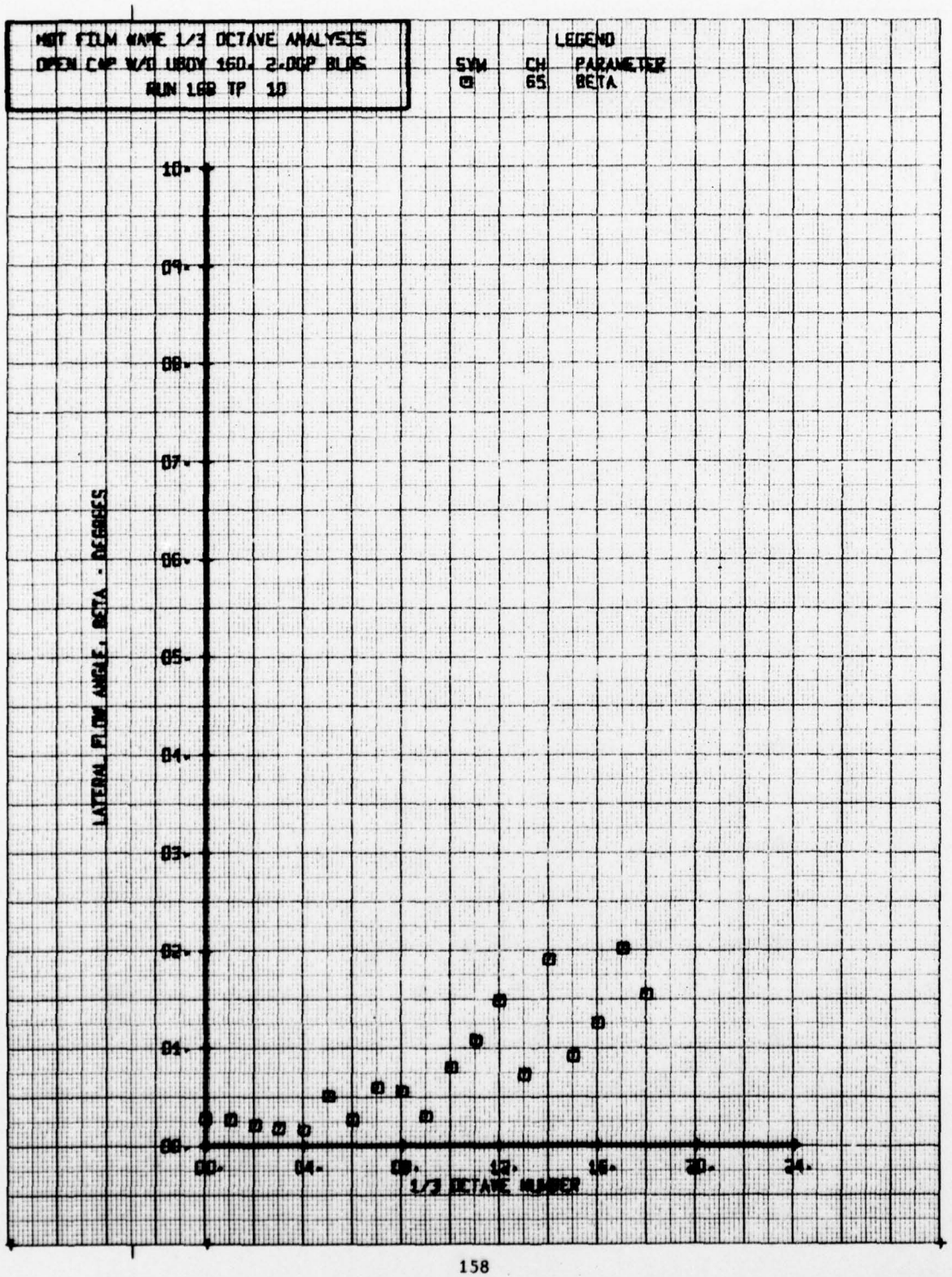

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UNDV 160. 2.00P BLDS
RUN 168 TP 5
LEGEND
SYM CH PARAMETER
65 BETA
10.
09.
08.
07.
06.
05.
04.
03.
02.
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LATERAL FLOW ANGLE, BETA - DEGREES
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08.
12.
16.
20.
24.
1/3 OCTAVE NUMBER

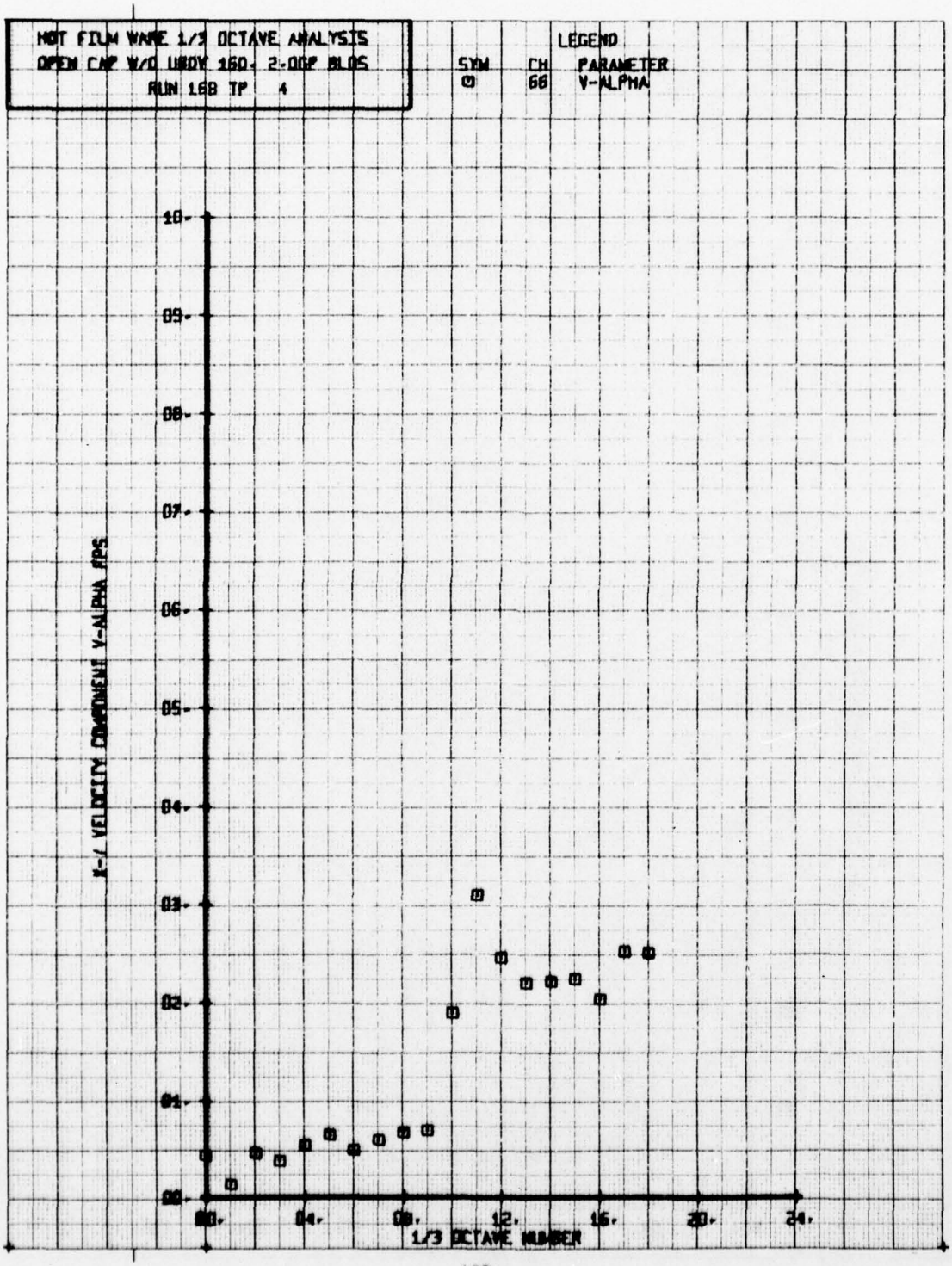

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBODY 180. 2.00P BLDS
RUN 168 TP 6
LEGEND
SYM CH PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER
10.
09.
08.
07.
06.
05.
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03.
02.
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04.
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12.
16.
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24.

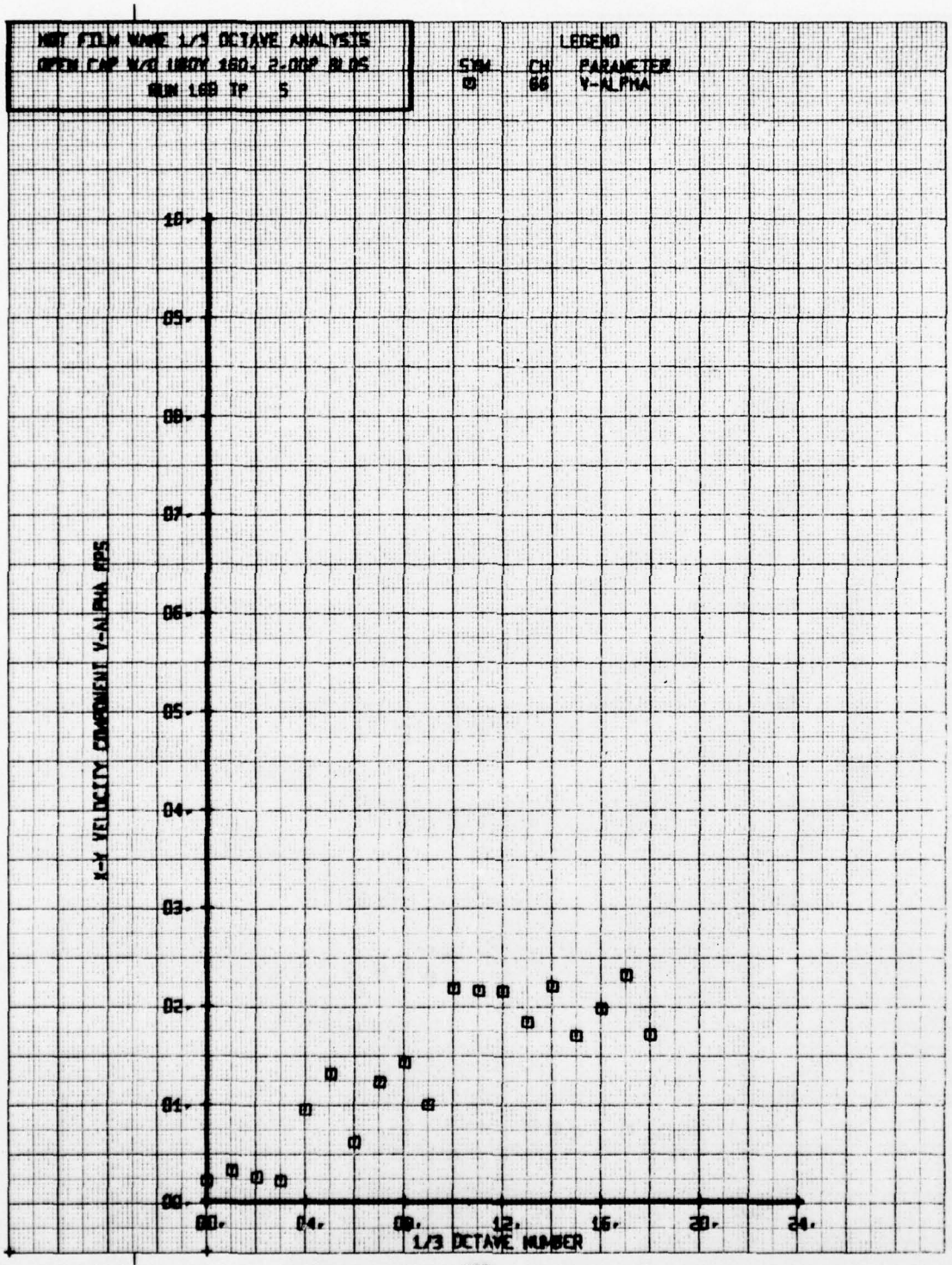

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY 160. 2-OGP BLDS
RUN 168 TP 7
LEGEND
SYM CH PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER

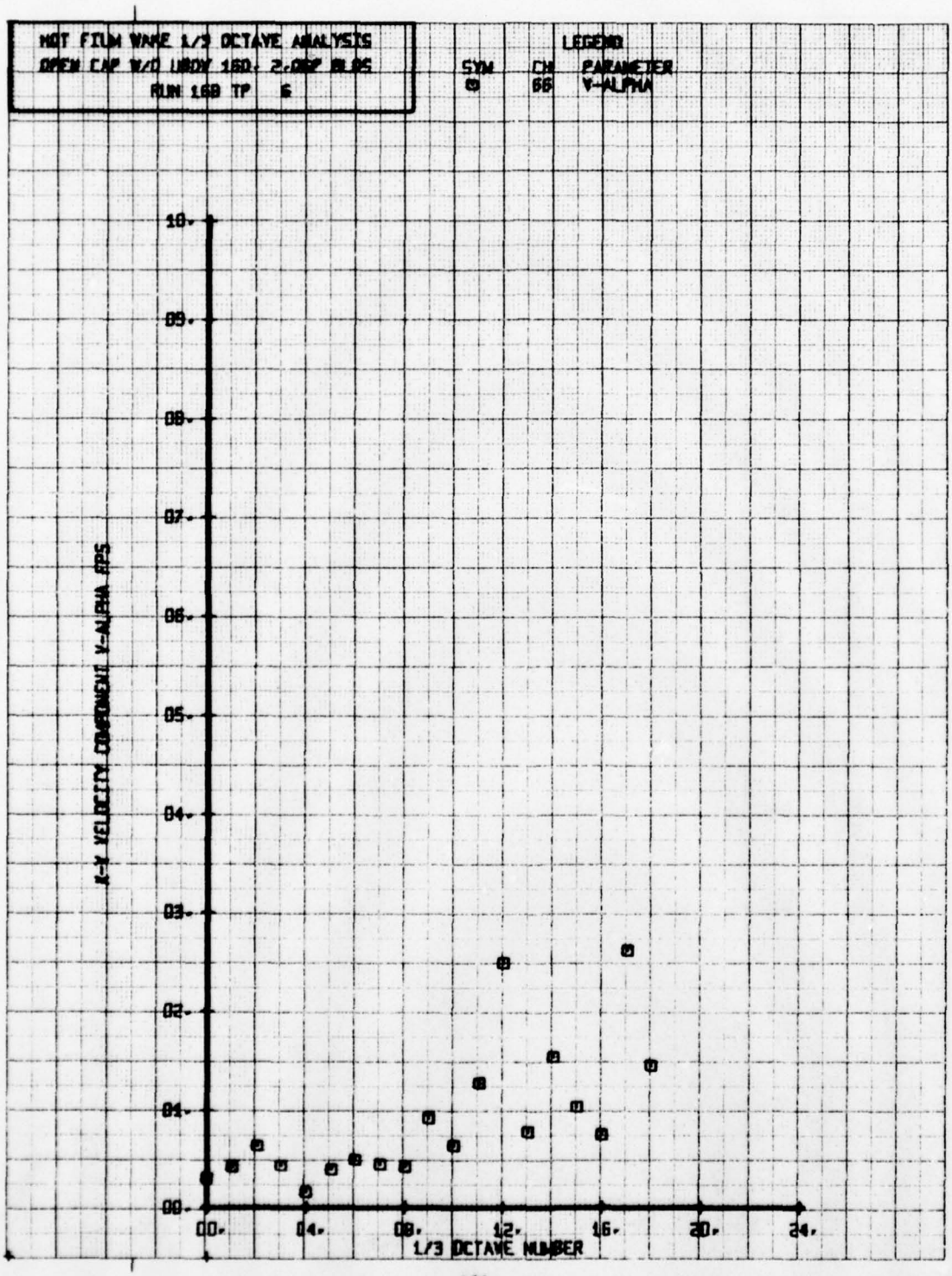

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAV W/O UNDTY 180. 2.0DP BLDS
RUN 168 TP 9
LEGEND
SYM CH PARAMETER
05 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER
00.
04.
08.
12.
16.
20.
24.

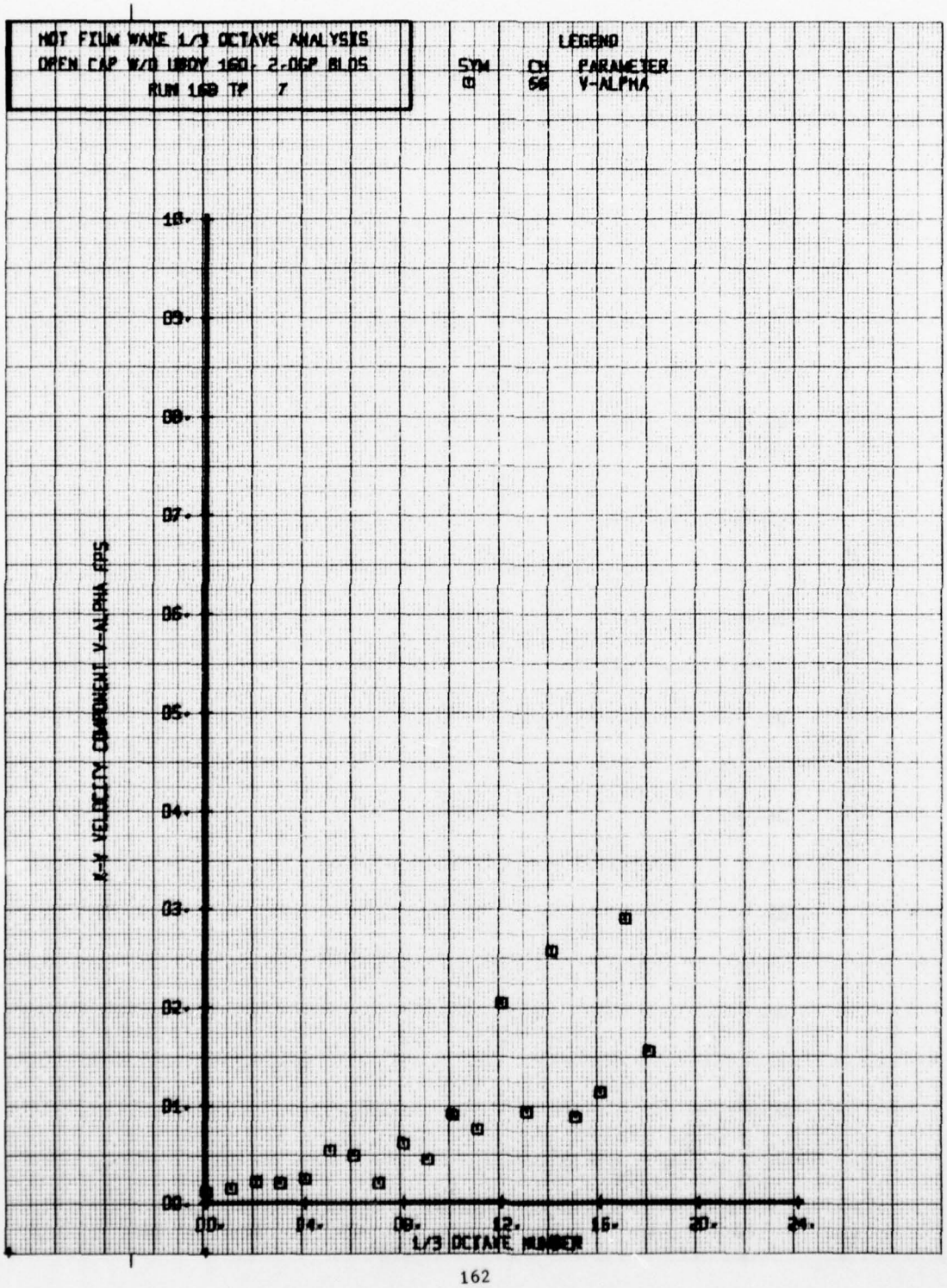

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O LBOW 1GD. 2.DEP BLDS
RUN 168 TP 9
LEGEND
SYM CH PARAMETER
65 BETA
10.
09.
08.
07.
06.
05.
04.
03.
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LATERAL FLOW ANGLE, BETA - DEGREES
00.
04.
08.
12.
16.
20.
24.
1/3 OCTAVE NUMBER

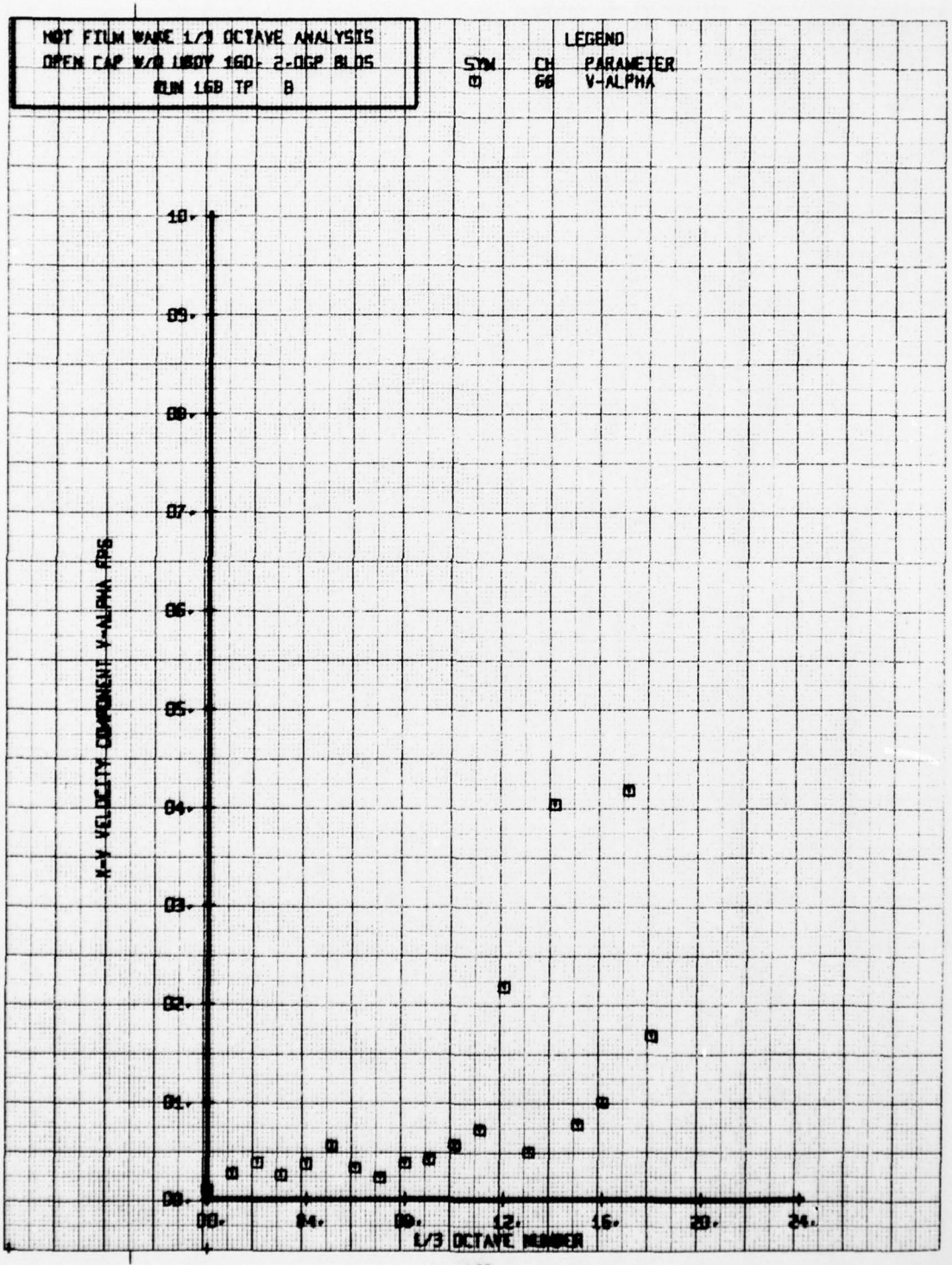

MBT FILM NAME 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY 160. 2.00P BLDS
RUN 168 TP 10
LEGEND
SYM CH PARAMETER
65 BETA
10.
09.
08.
07.
06.
05.
04.
03.
02.
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LATERAL FLOW ANGLE, BETA - DEGREES
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24.
1/3 OCTAVE NUMBER

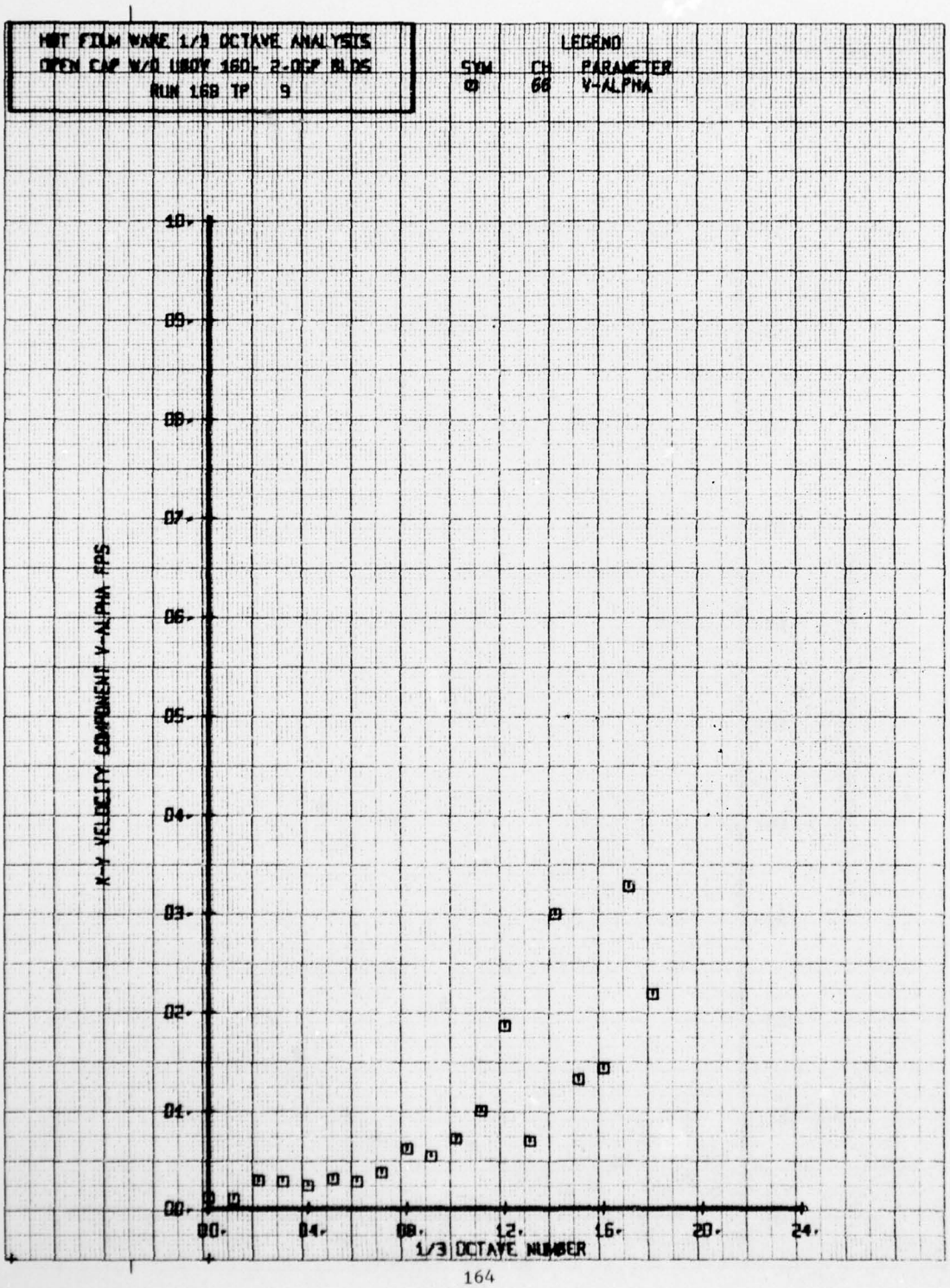

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBDY 160. 2-DOF BLDS
RUN 168 TP 4
LEGEND
SYM CH PARAMETER
66 V-ALPHA
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24.
1/3 OCTAVE NUMBER
X-/ VELOCITY COMPONENT V-ALPHA FPS

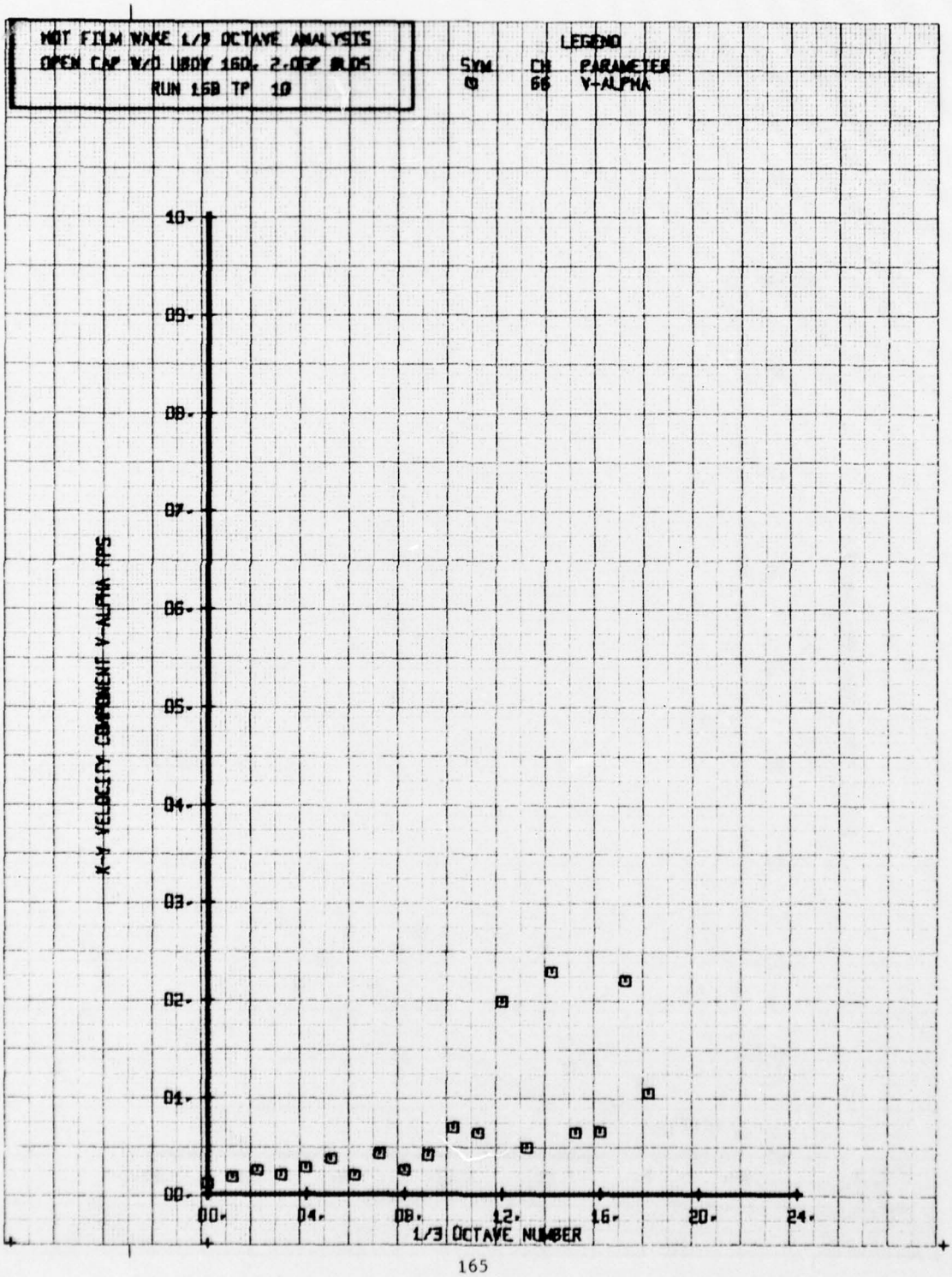

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O 180DY 160. 2-DOP BLDS
RUN 160 TP 5
LEGEND
SYM CH PARAMETER
0 66 V-ALPHA
X-Y VELOCITY COMPONENT V-ALPHA RMS
1/3 OCTAVE NUMBER

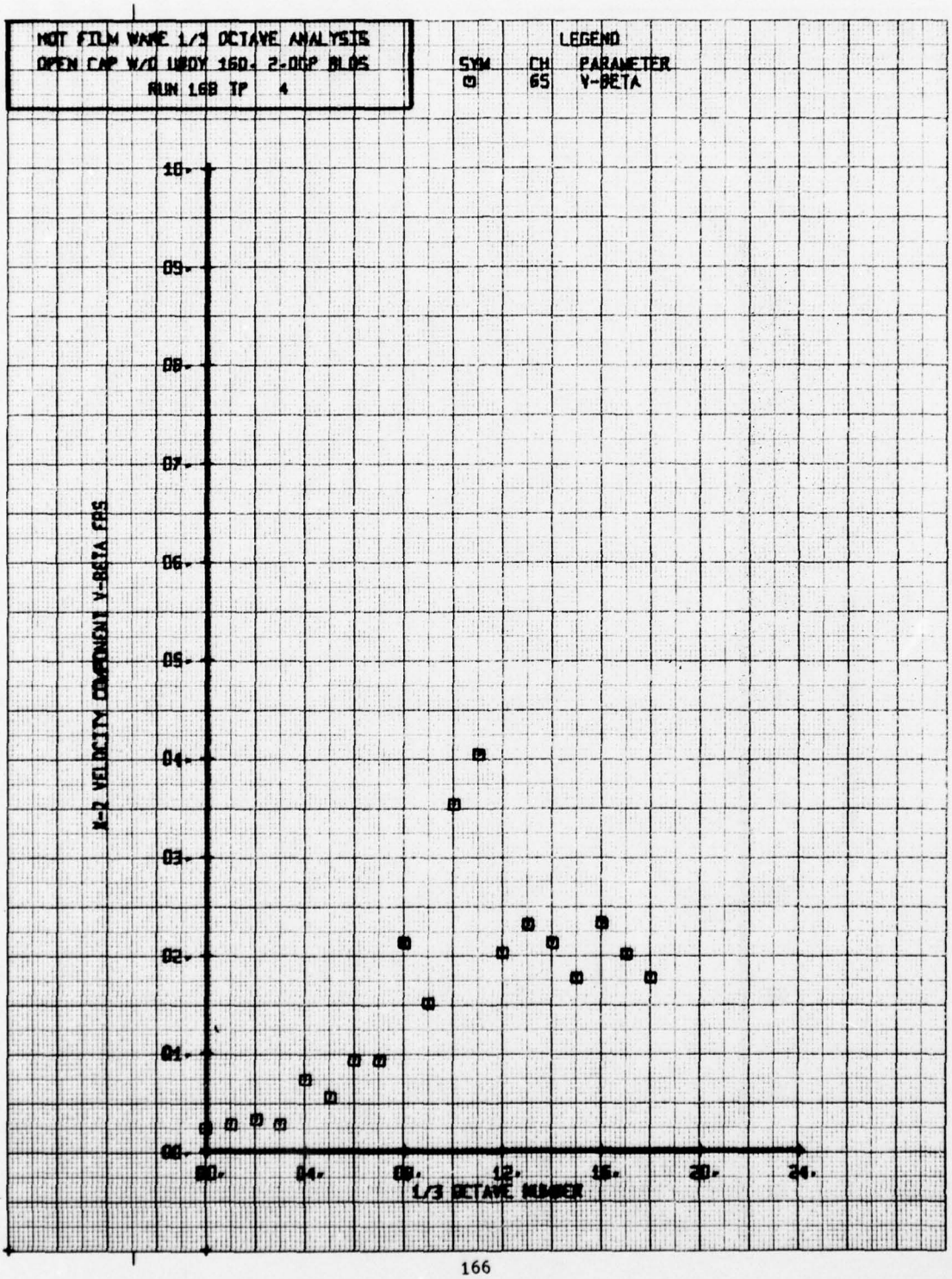

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBODY 160. 2.0DP BLDS
RUN 168 TP 6
LEGEND
SYM CH PARAMETER
66 V-ALPHA
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X-Y VELOCITY COMPONENT V-ALPHA RPS
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16.
20.
24.
1/3 OCTAVE NUMBER

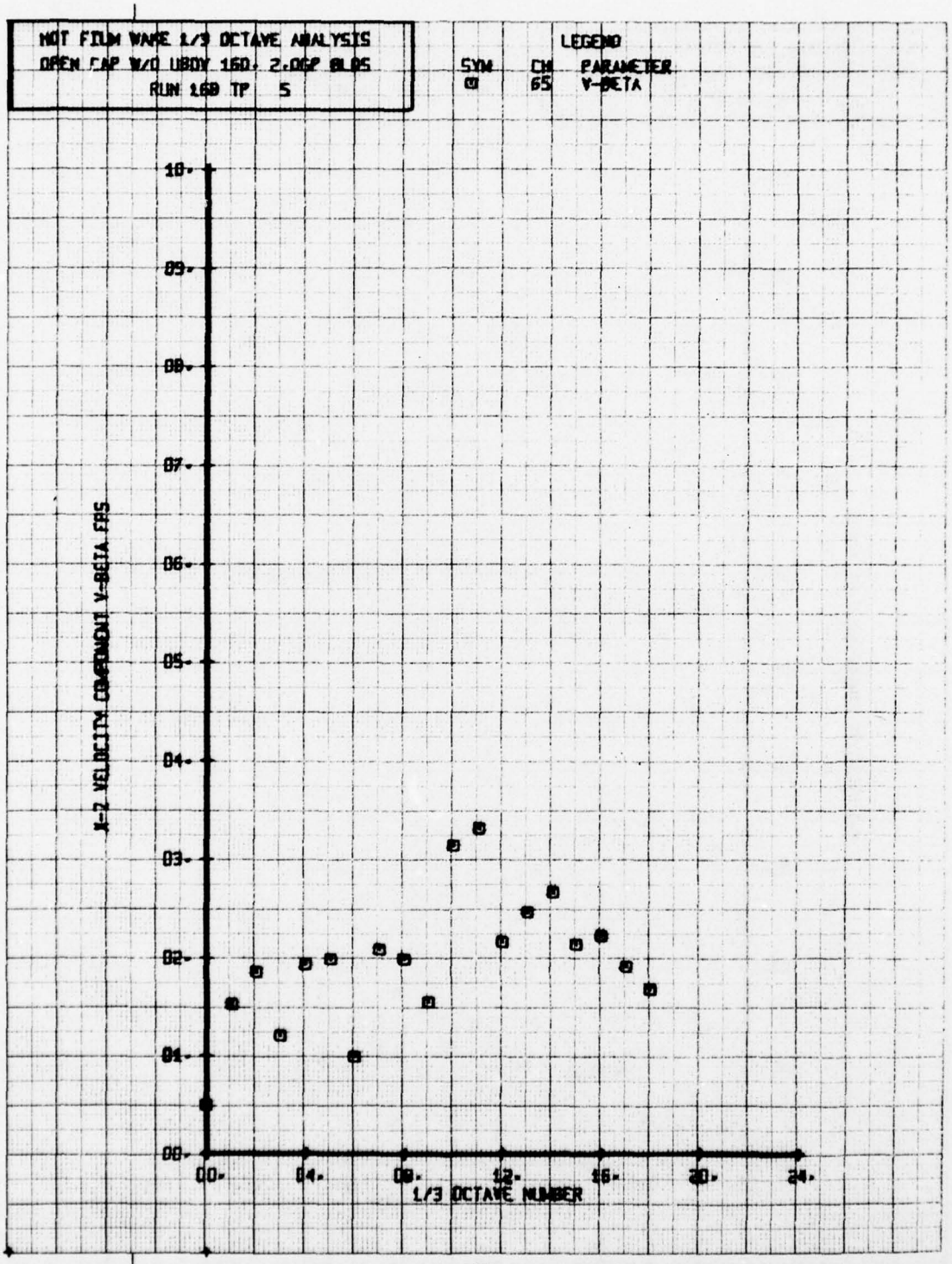

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBODY 160- 2-DGP BLDS
RUN 168 TP 7
LEGEND
SYM CH PARAMETER
56 V-ALPHA
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1/3 OCTAVE NUMBER
K-V VELOCITY COMPONENT V-ALPHA FPS

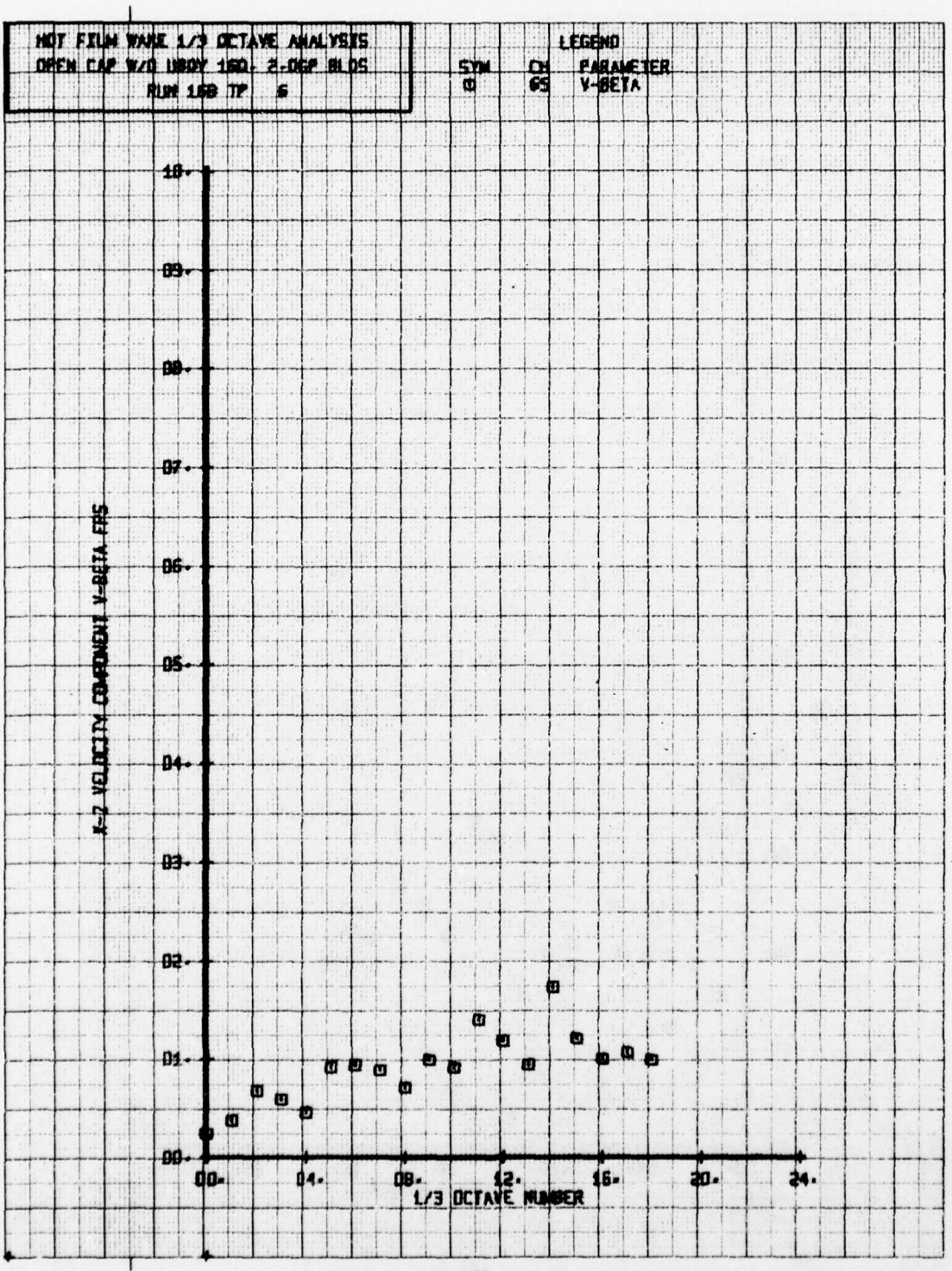

HOT FILM WARE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O LBOY 160. 2-DGP BLDS
RUN 16B TP 8
LEGEND
SYM CH PARAMETER
66 V-ALPHA
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X-Y VELOCITY COMPONENT V-ALPHA FPS
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24.
1/3 OCTAVE NUMBER

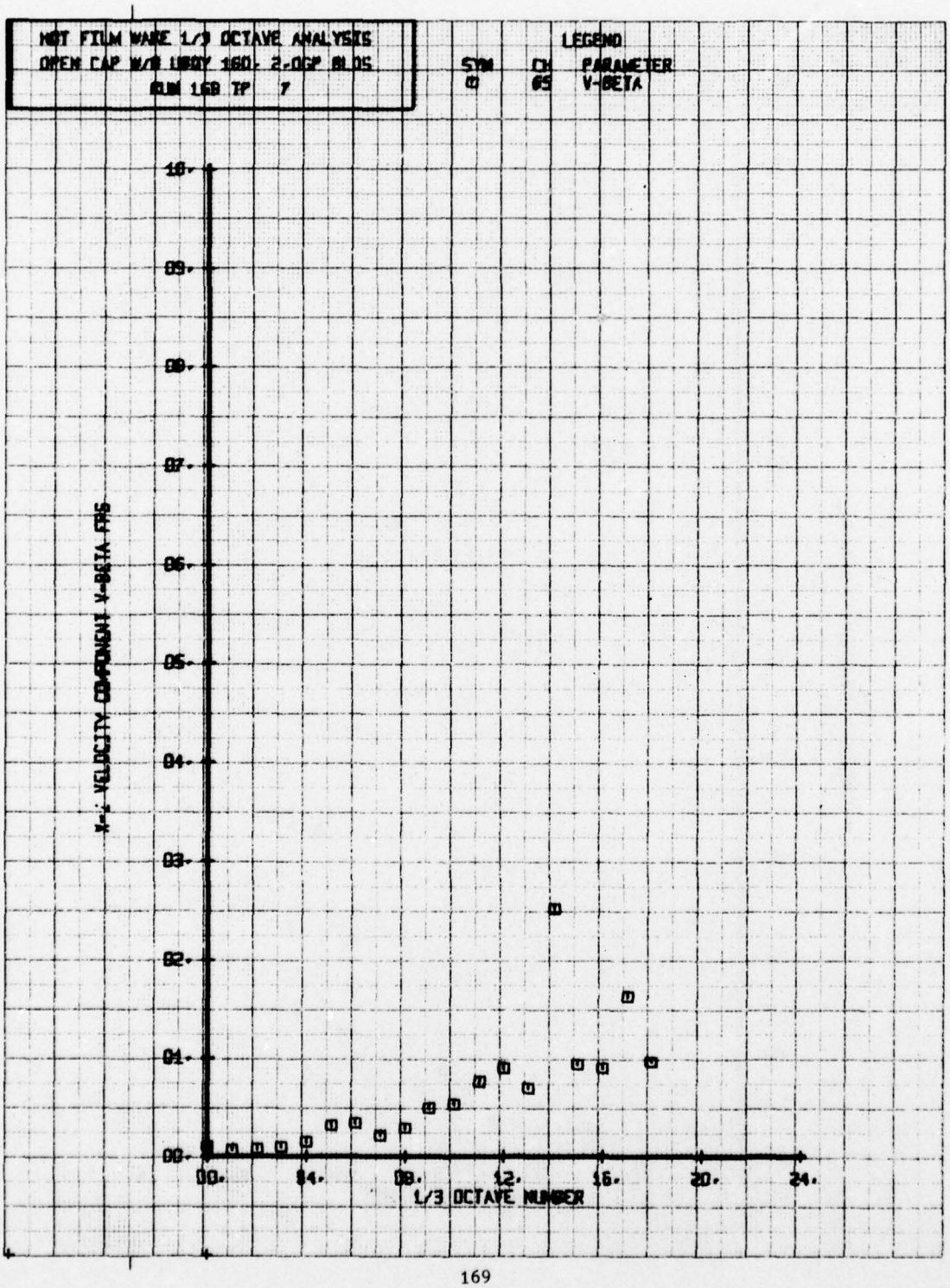

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY 160- 2-OCP RUNS
RUN 168 TP 9
LEGEND
SYM CH PARAMETER
Ø 66 V-ALPHA
X-V VELOCITY COMPONENT V-ALPHA RPS
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1/3 OCTAVE NUMBER

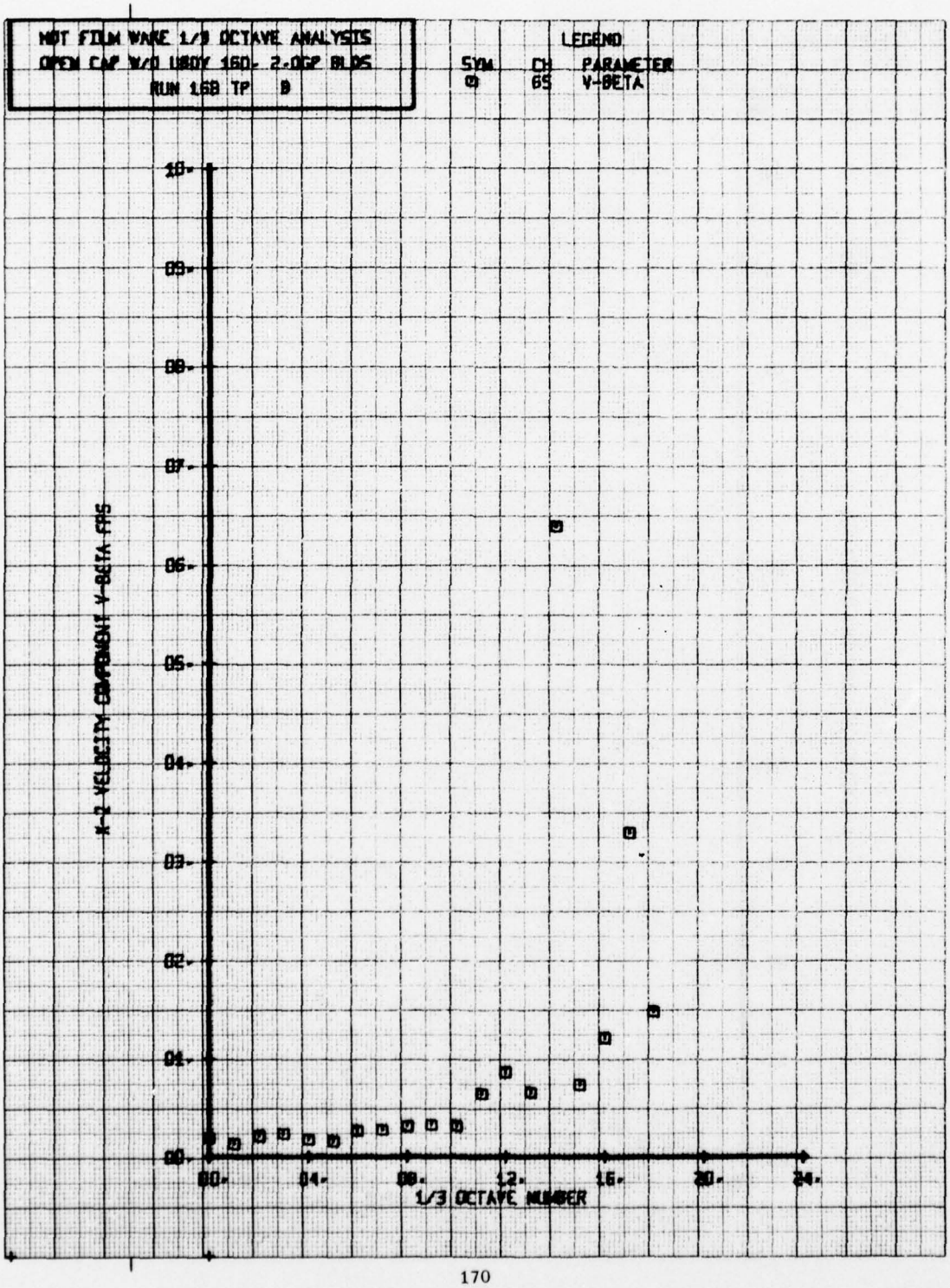

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O BODY 160. 2.0IN BLDS
RUN 158 TP 10
LEGEND
SYM CH PARAMETER
66 V-ALPHA
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X-V VELOCITY COMPONENT V-ALPHA RMS
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1/3 OCTAVE NUMBER

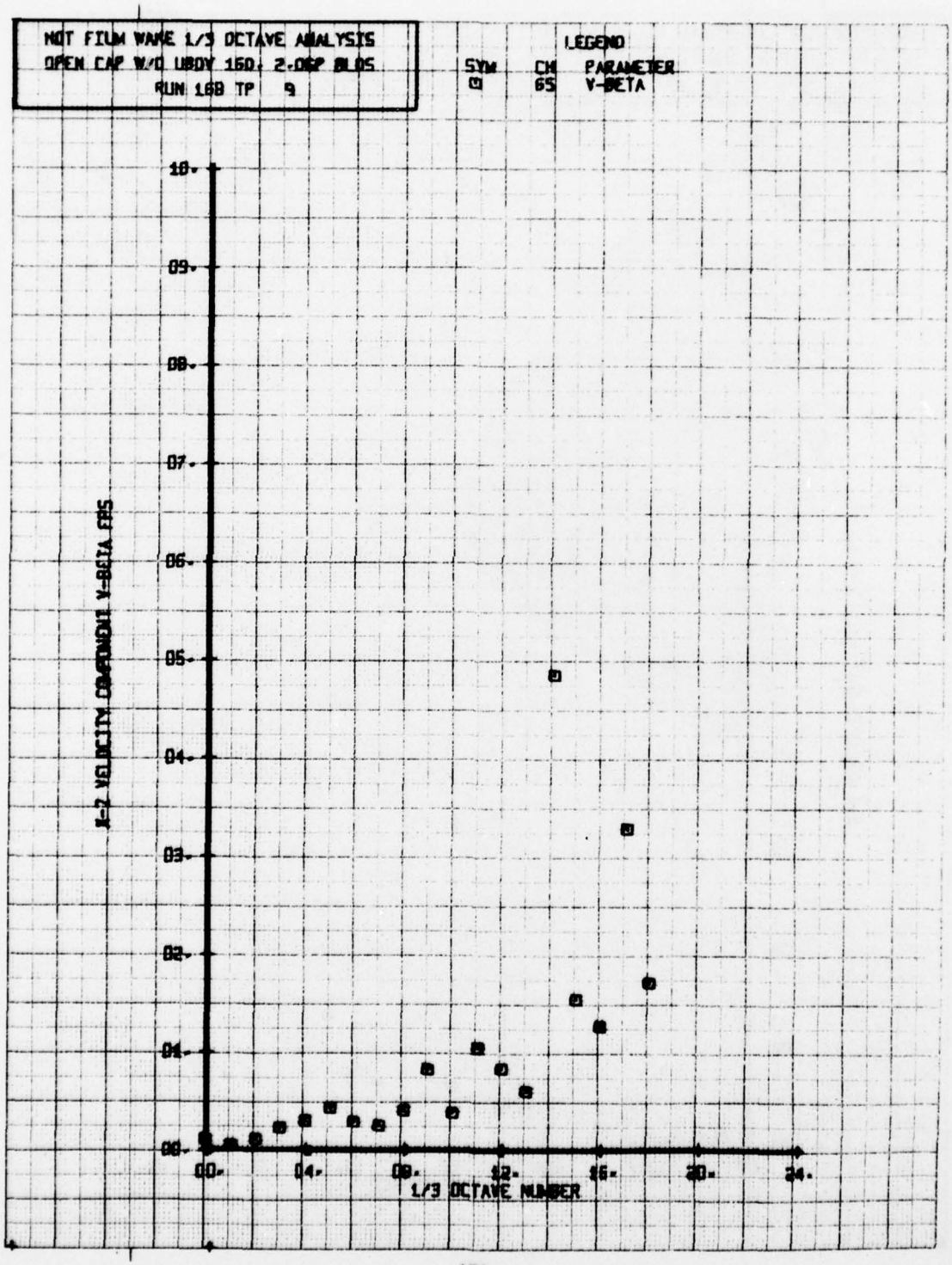

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBODY 160. 2-DGP BLDS
RUN 168 TP 4
LEGEND
SYM CH PARAMETER
65 V-BETA
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N-2 VELOCITY COMPONENT V-BETA FPS
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1/3 OCTAVE NUMBER

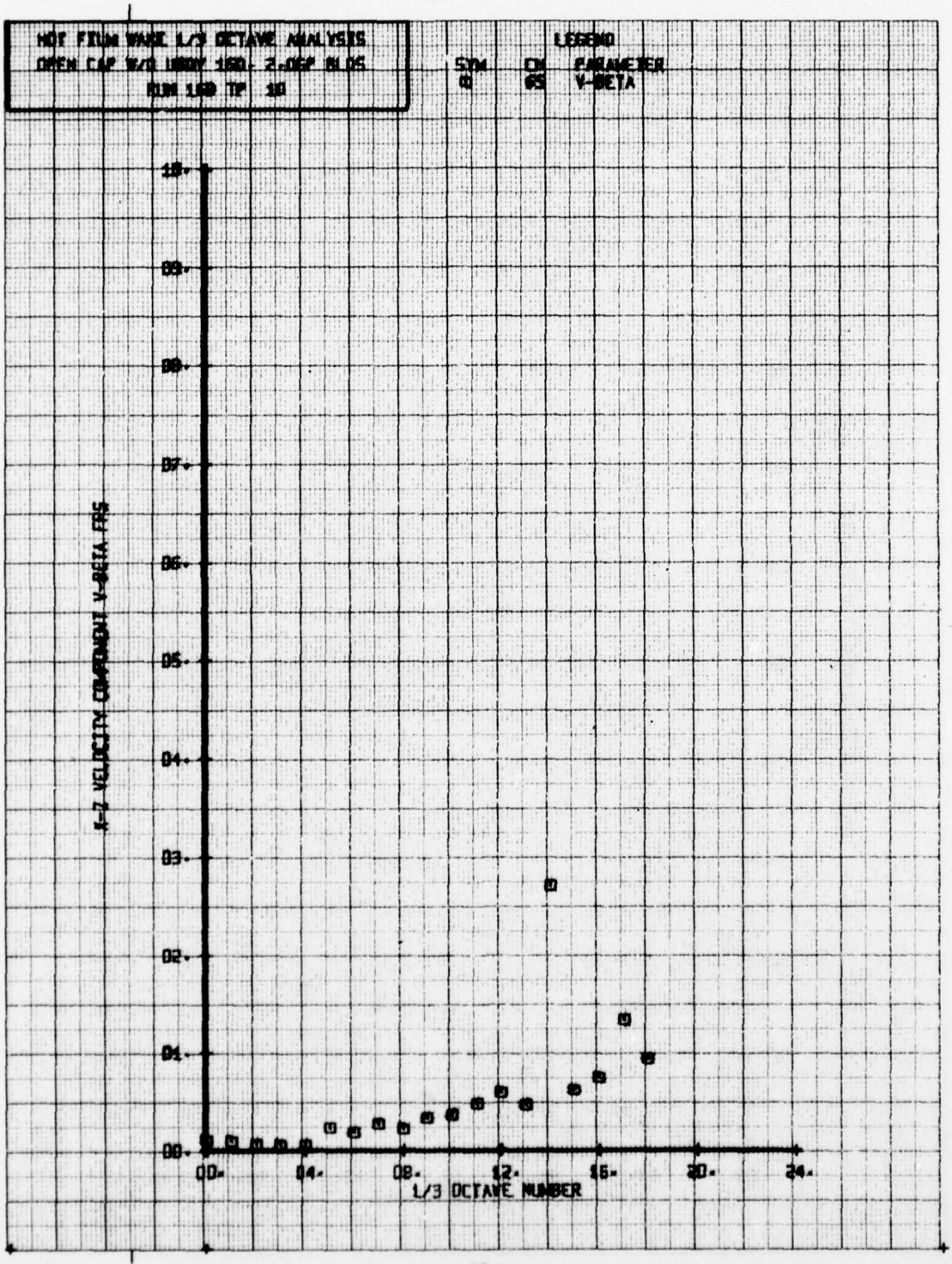

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBODY 160. 2.0GP BLOS
RUN 169 TP 5
LEGEND
SYM CH PARAMETER
65 V-BETA
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X-2 VELOCITY COMPONENT V-BETA FPS
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1/3 OCTAVE NUMBER

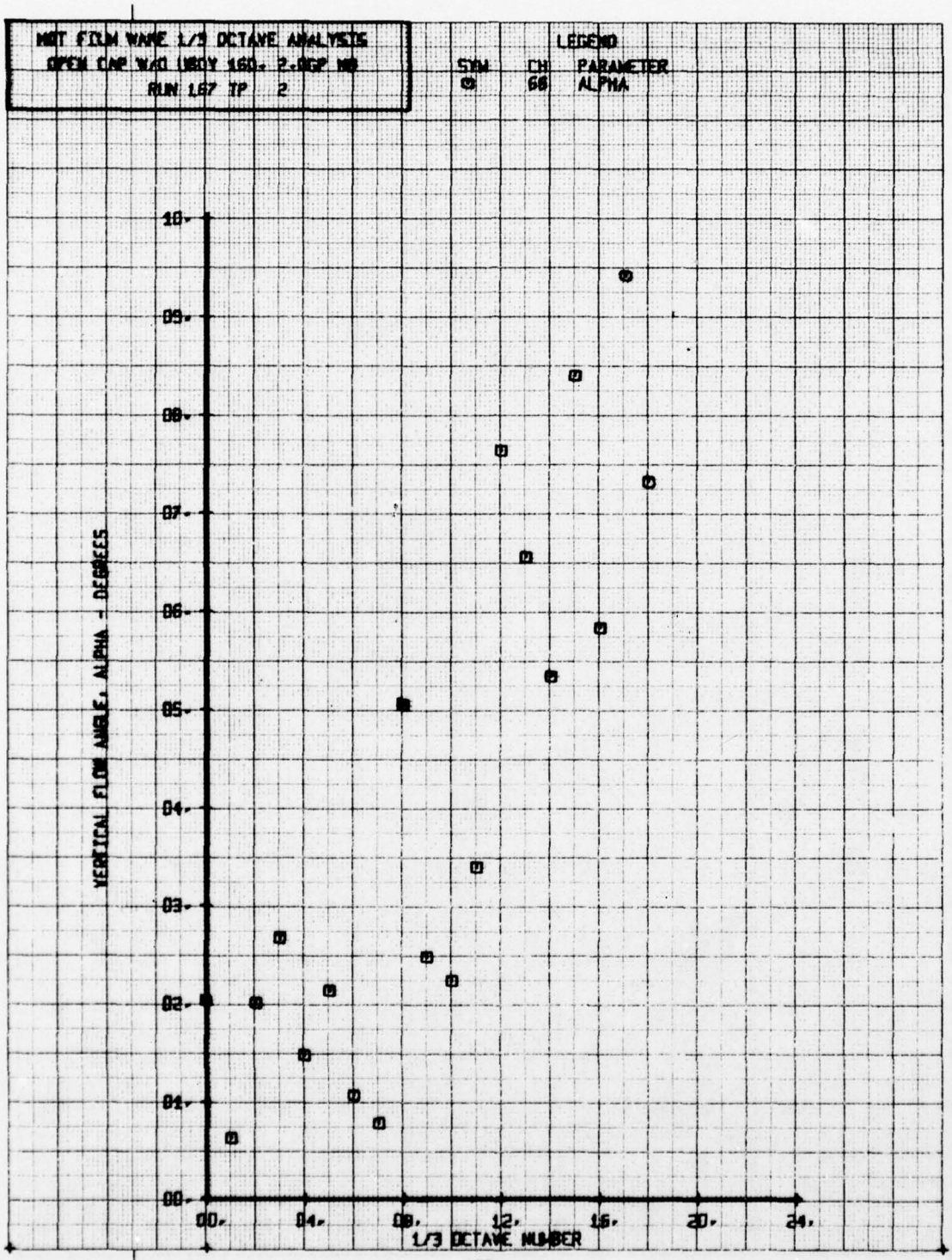

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBODY 160. 2-DGP BLDS
RUN 168 TP 6
LEGEND
SYM CH PARAMETER
65 V-BETA
X-Z VELOCITY COMPONENT V-BETA FPS
1/3 OCTAVE NUMBER
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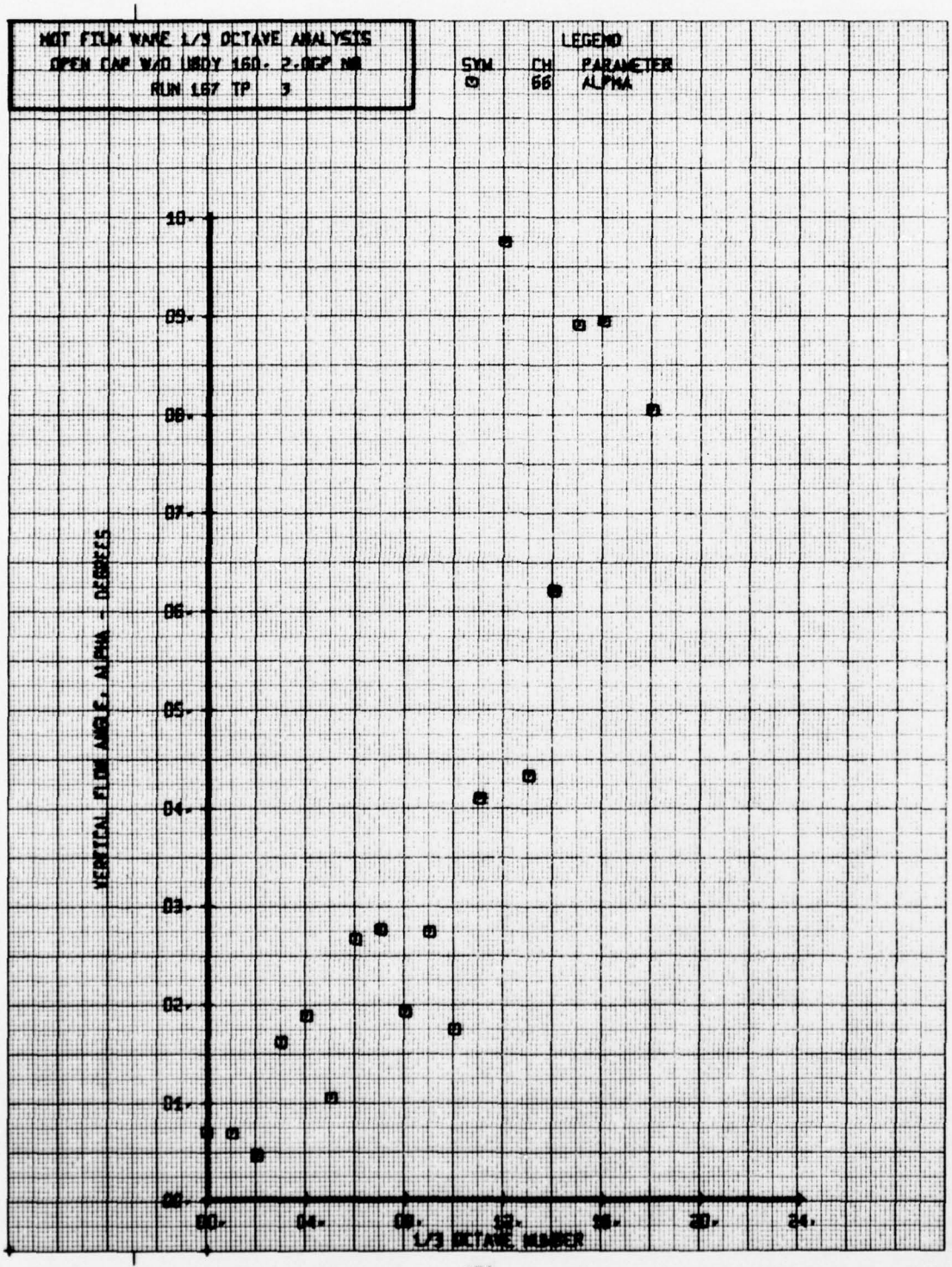

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/8 LOBOY 160- 2-DGP BLDS
RUN 168 TP 7
LEGEND
SYM CH PARAMETER
□ 65 V-BETA
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V-: VELOCITY COMPONENT V-BETA-FPS
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1/3 OCTAVE NUMBER

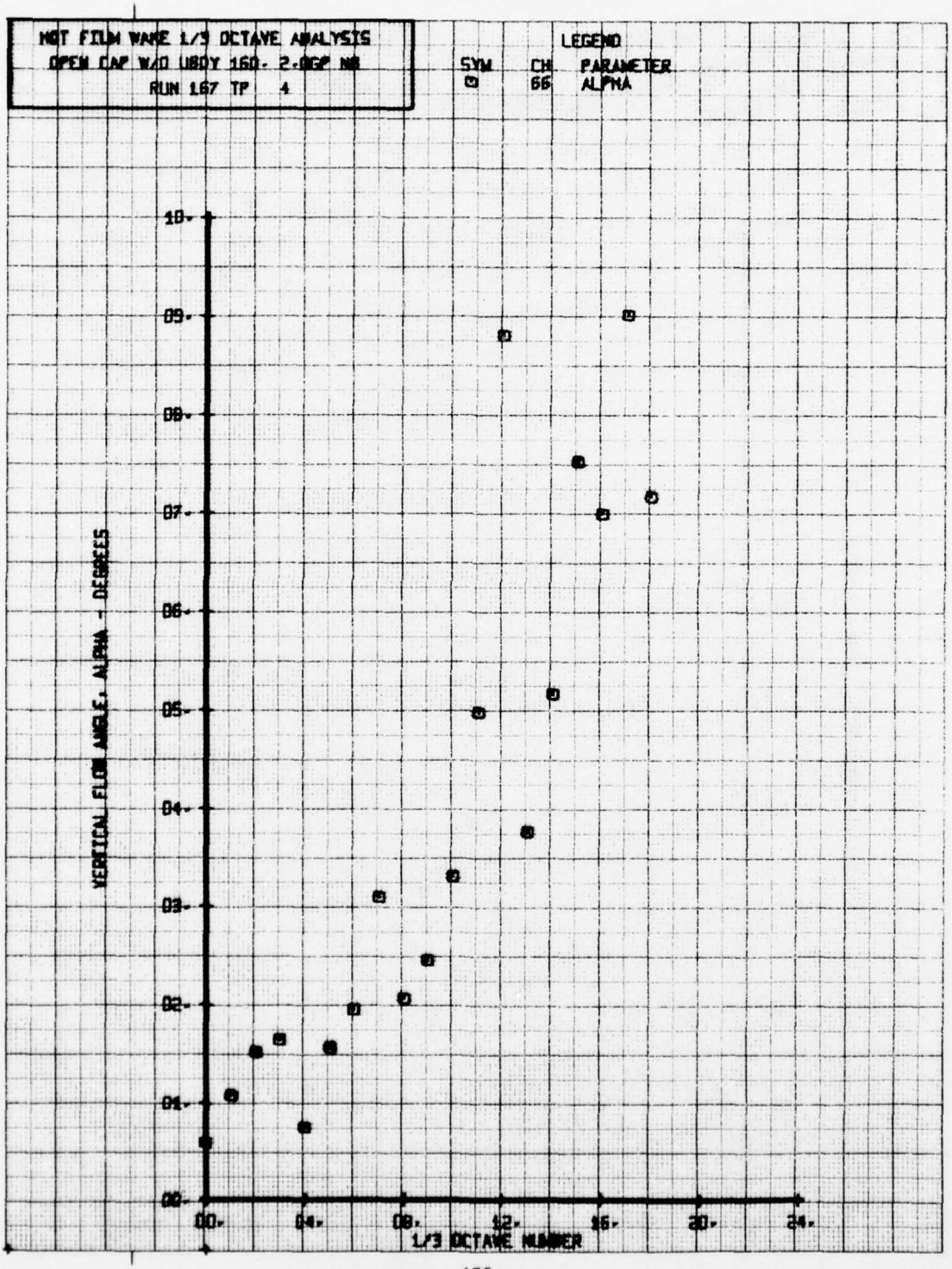

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY 160- 2-DGP BLDS
RUN 168 TP 9
LEGEND
SYM CH PARAMETER
65 V-BETA
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1/3 OCTAVE NUMBER

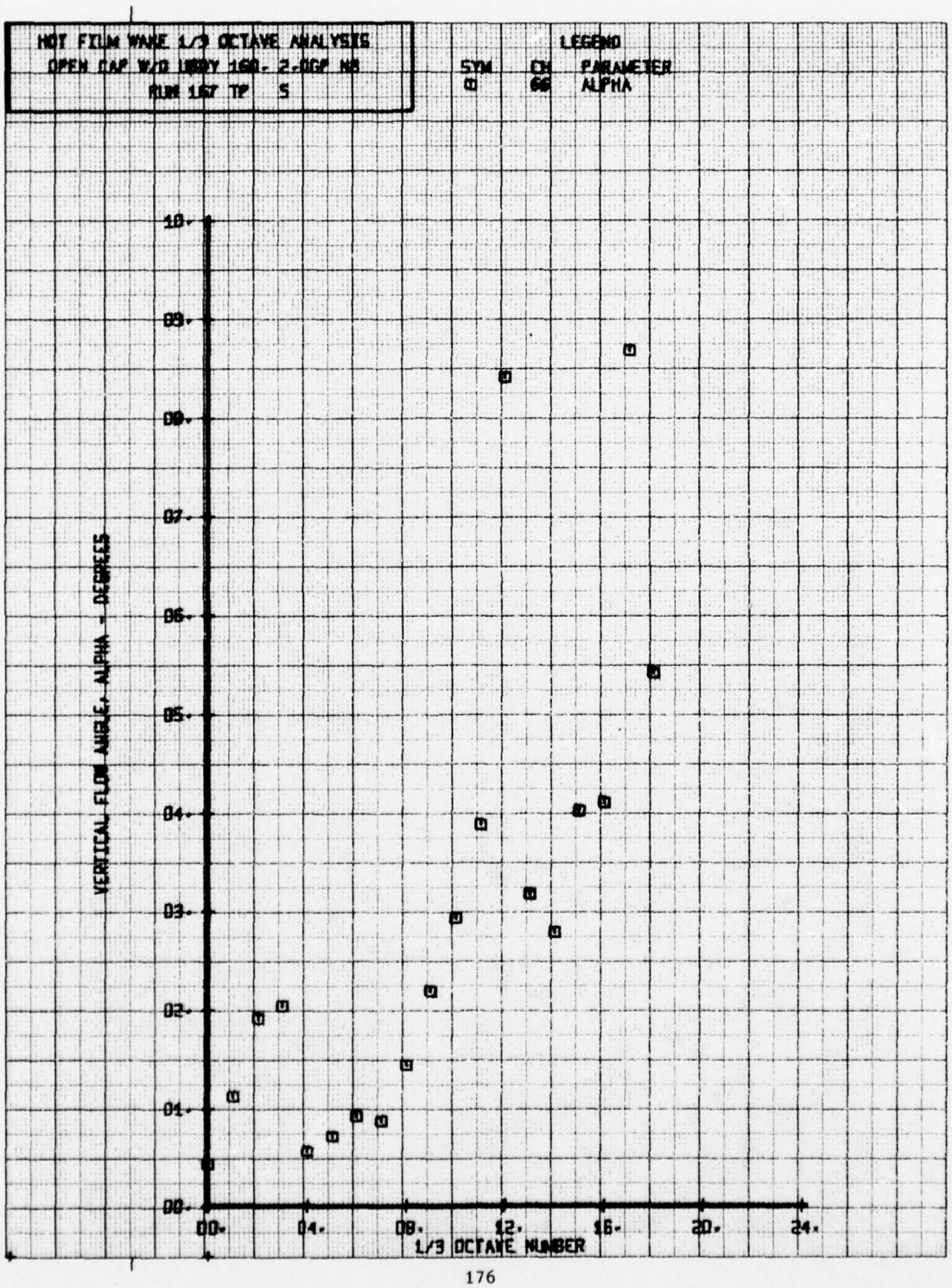

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBDY 160. 2-DGP BLDS
RUN 168 TP 9
LEGEND
SYM CH PARAMETER
65 V-BETA
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1/3 OCTAVE NUMBER
K-2 VELOCITY COMPONENT V-BETA GBS

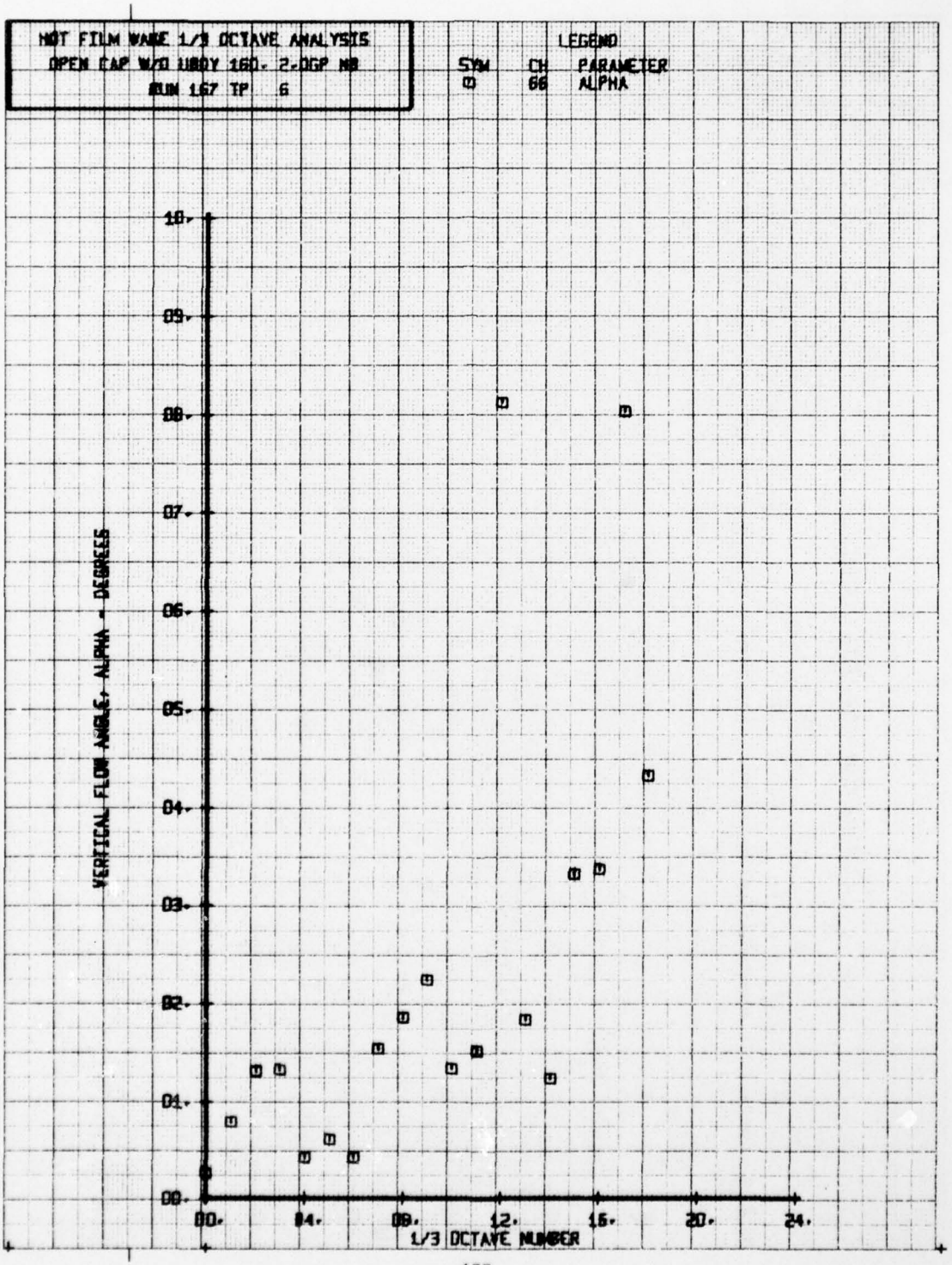

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O HUMP 150. 2.DEP BLDS
RUN 160 TP 10
LEGEND
SYM CH PARAMETER
65 V-BETA
K-Z VELOCITY COMPONENT V-BETA FRS
1/3 OCTAVE NUMBER
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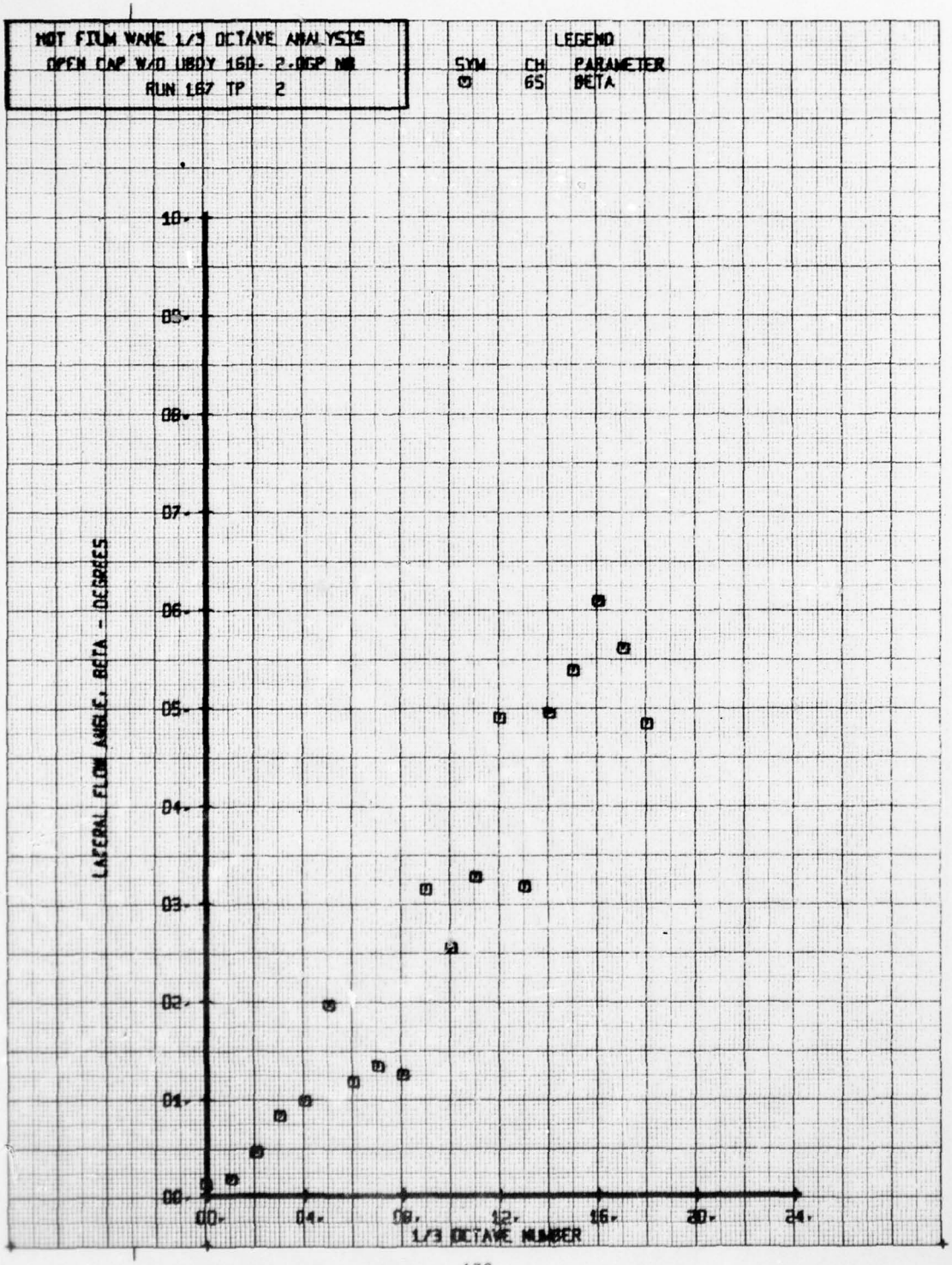

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP WAG (BODY 160. 2.0GP NO
RUN 167 TP 2
LEGEND
SYM CH PARAMETER
68 ALPHA
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VERTICAL FLOW ANGLE, ALPHA - DEGREES
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1/3 OCTAVE NUMBER

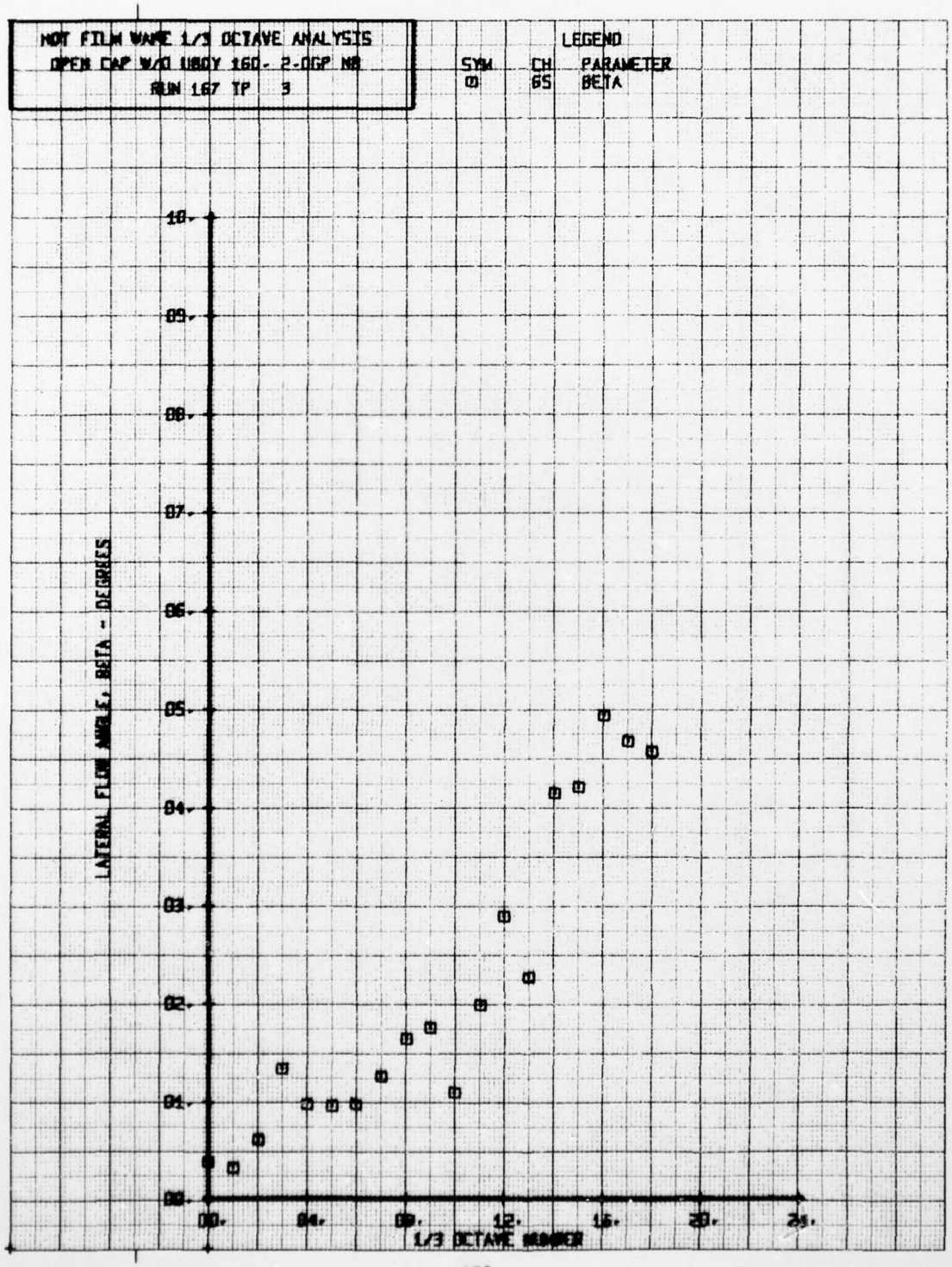

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O BODY 160. 2.0GP NB
RUN 167 TP 3
LEGEND
SYM CH PARAMETER
66 ALPHA
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VERTICAL FLOW ANGLE, ALPHA - DEGREES
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1/3 OCTAVE NUMBER

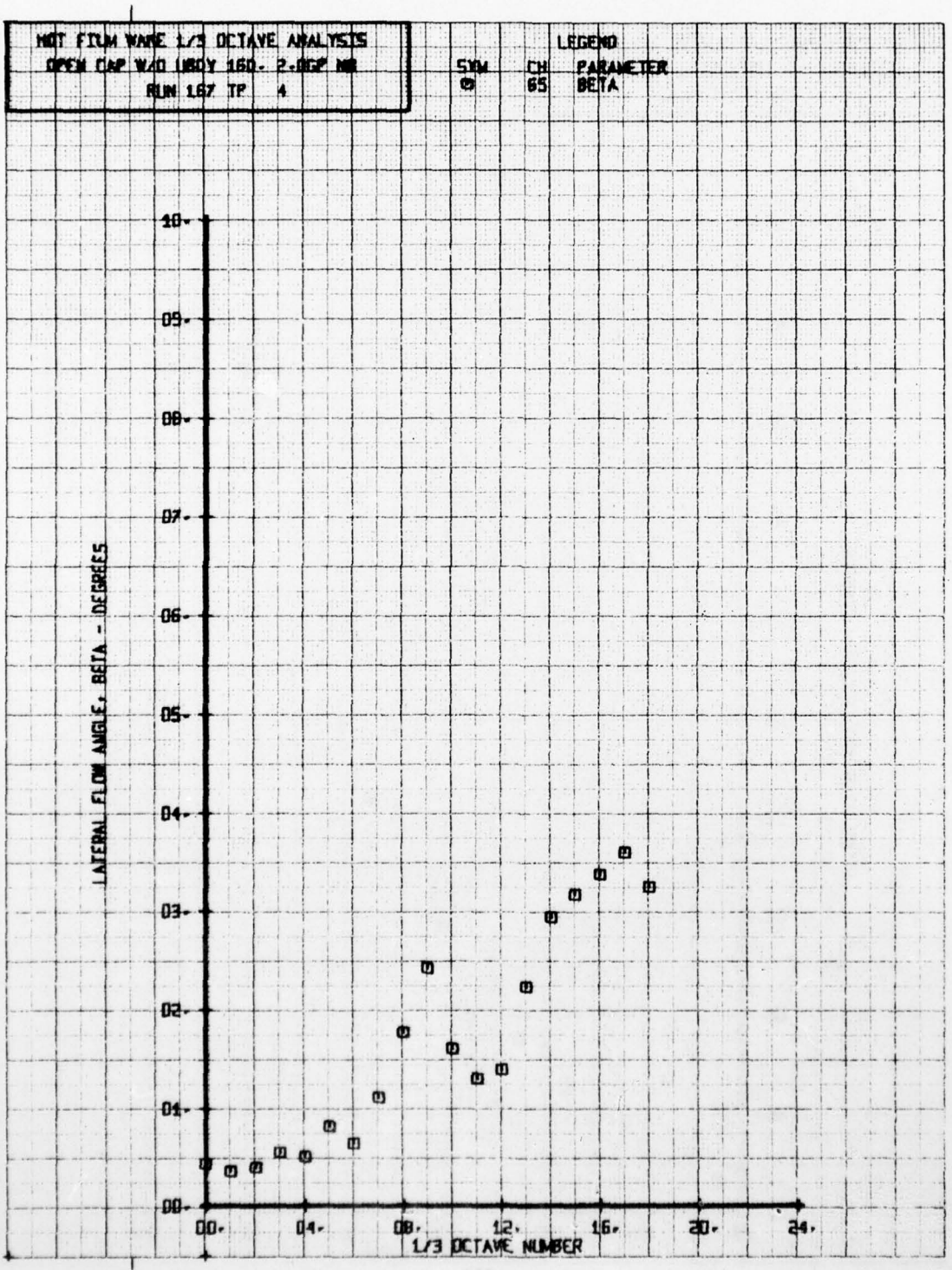

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY 160. 2.0GP NB
RUN 167 TP 4
LEGEND
SYM CH PARAMETER
66 ALPHA
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VERTICAL FLOW ANGLE, ALPHA - DEGREES
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1/3 OCTAVE NUMBER

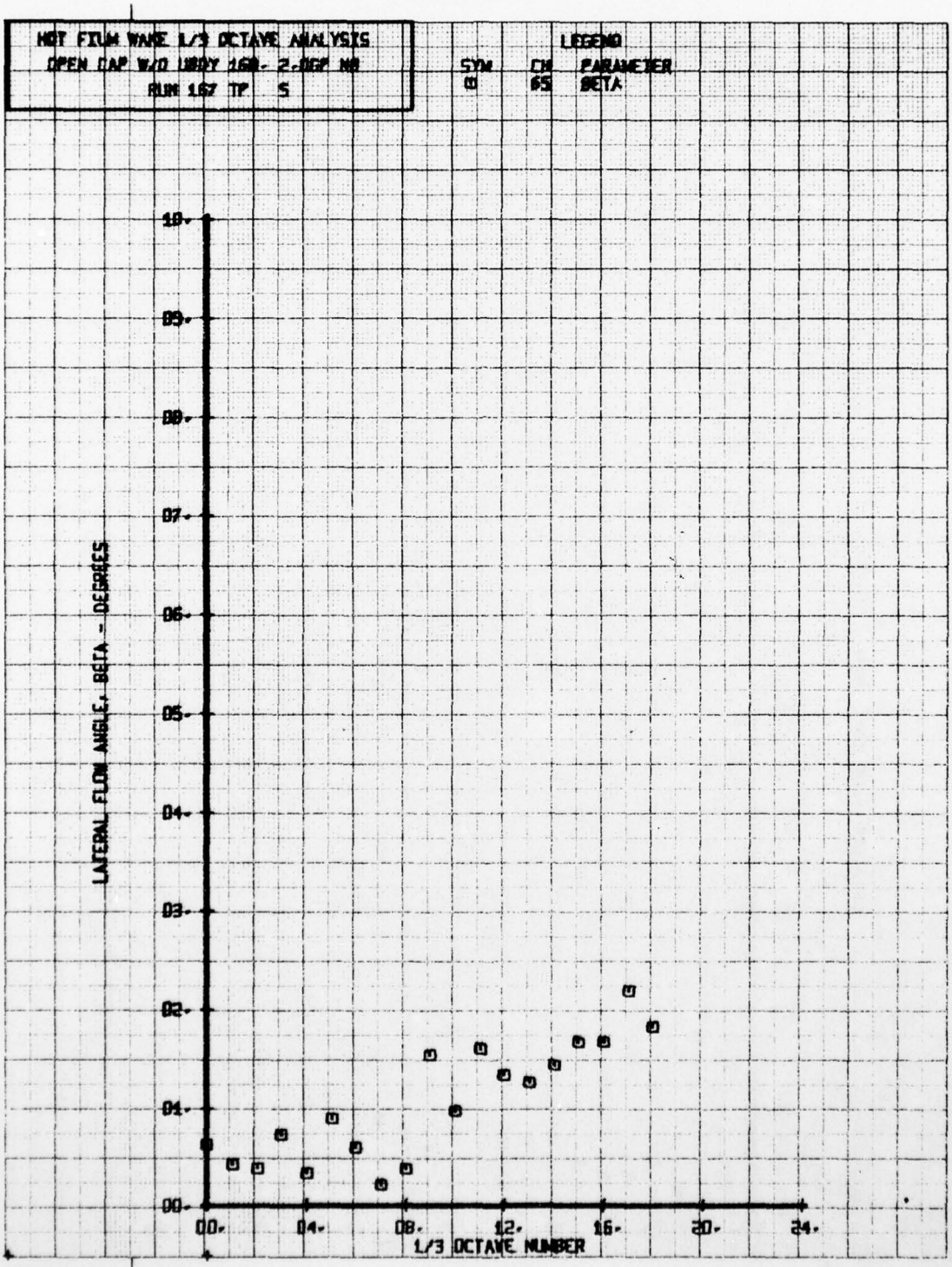

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O [illegible] 160. 2.0GP NB
RUN 167 TP 5
LEGEND
SYM CH PARAMETER
66 ALPHA
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VERTICAL FLOW ANGLE, ALPHA - DEGREES
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24.
1/3 OCTAVE NUMBER

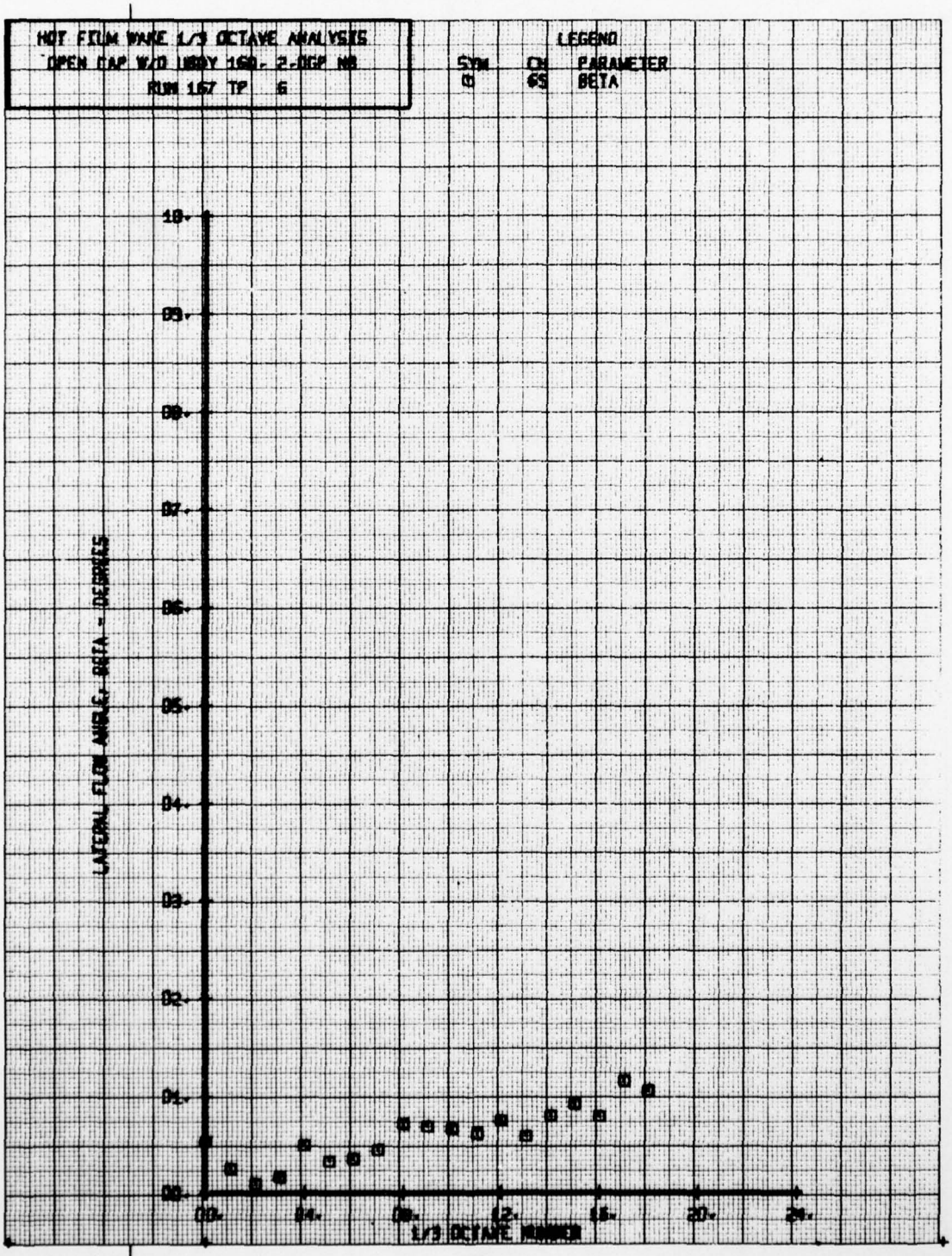

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBDY 160. 2.0GP NB
RUN 167 TP 6
LEGEND
SYM CH PARAMETER
66 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER
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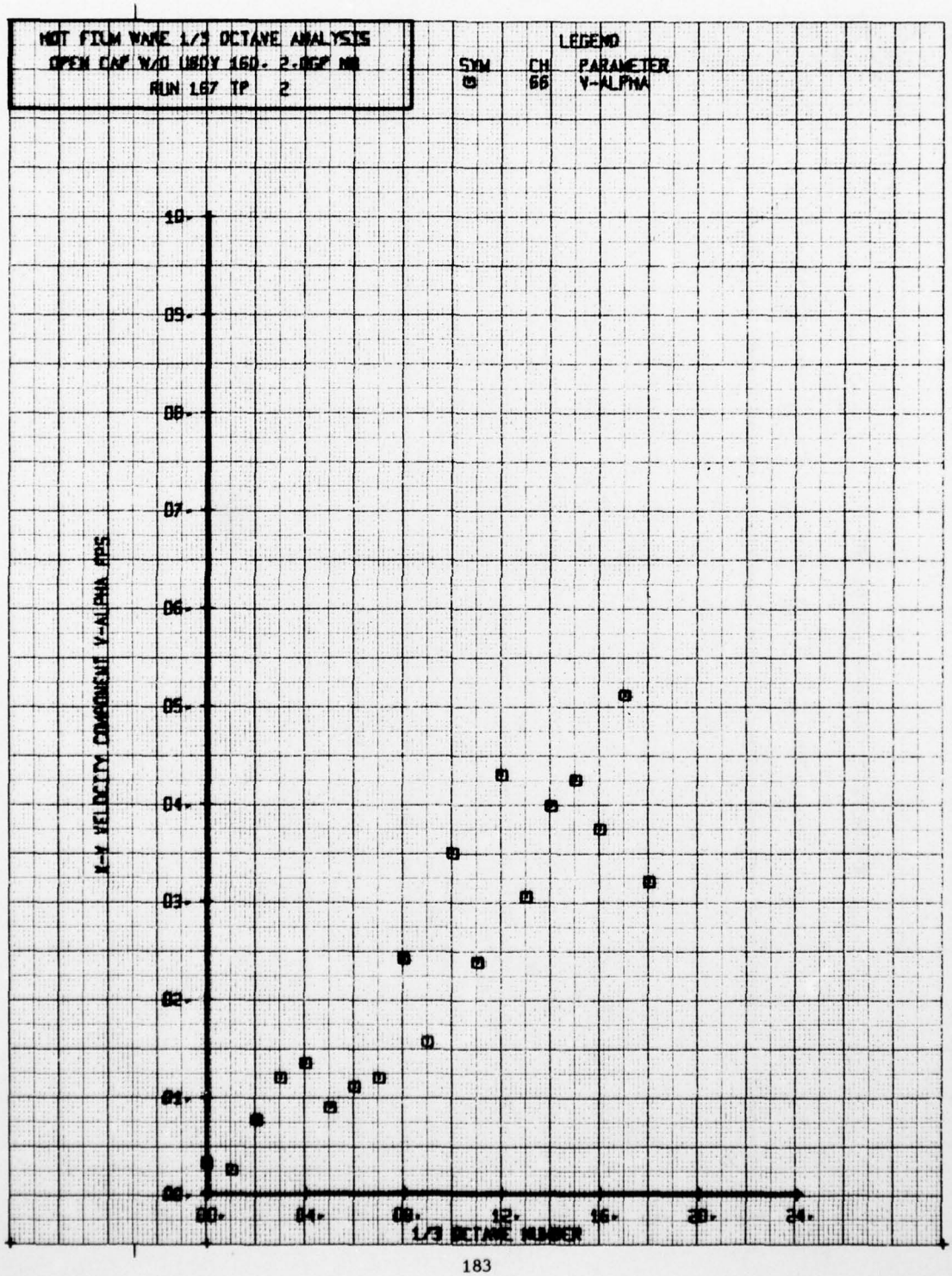

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBDY 160. 2.0GP NB
RUN 167 TP 2
LEGEND
SYM CH PARAMETER
65 BETA
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LATERAL FLOW ANGLE, BETA - DEGREES
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24.
1/3 OCTAVE NUMBER

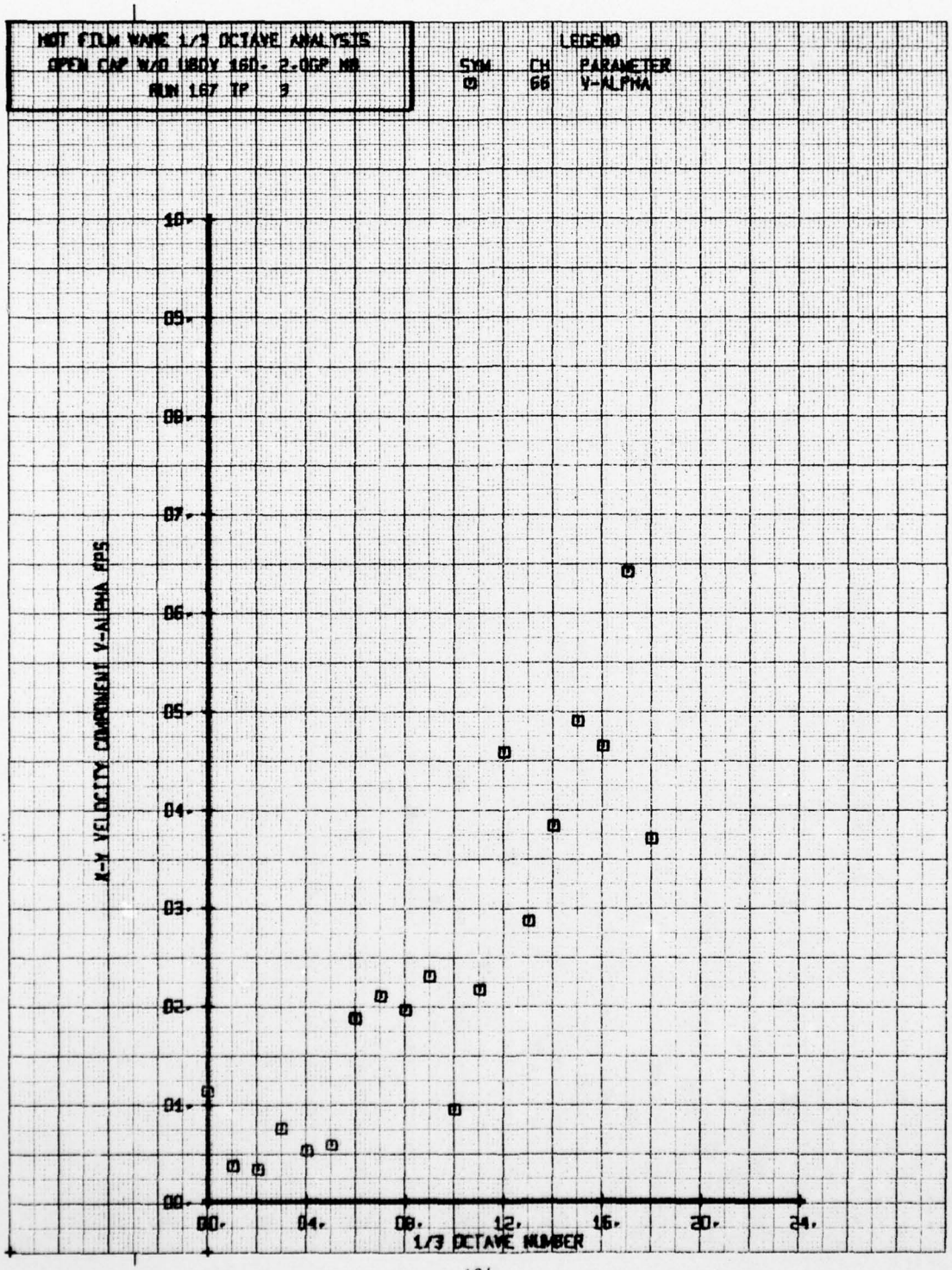

MOT FILM WAVE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY 160- 2-OGP NB
RUN 167 TP 3
LEGEND
SYM CH PARAMETER
6S BETA
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LATERAL FLOW ANGLE, BETA - DEGREES
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1/3 OCTAVE NUMBER

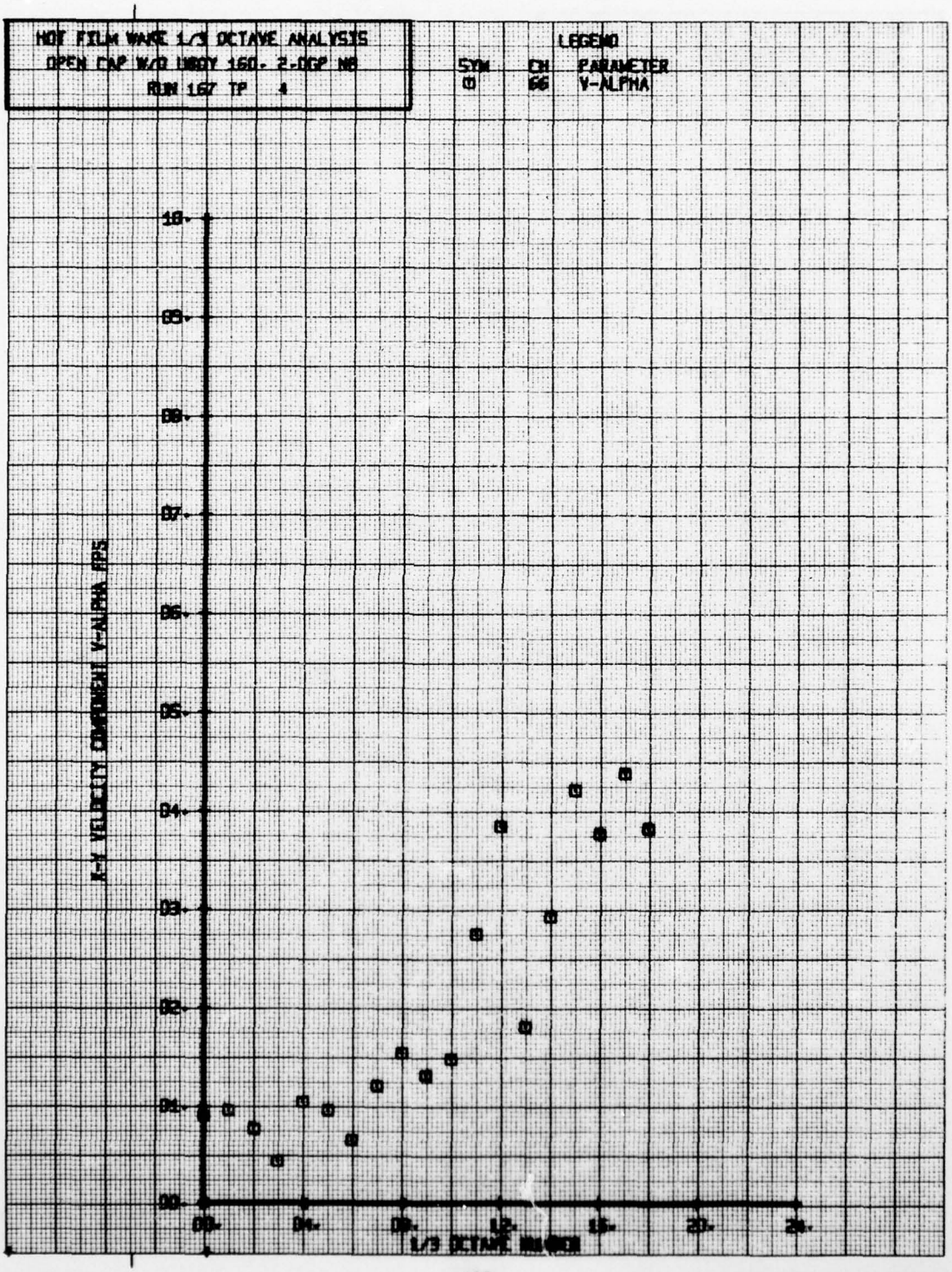

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY 160. 2.0GP MB
RUN 167 TP 4
LEGEND
SYM CH PARAMETER
65 BETA
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LATERAL FLOW ANGLE, BETA - DEGREES
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1/3 OCTAVE NUMBER

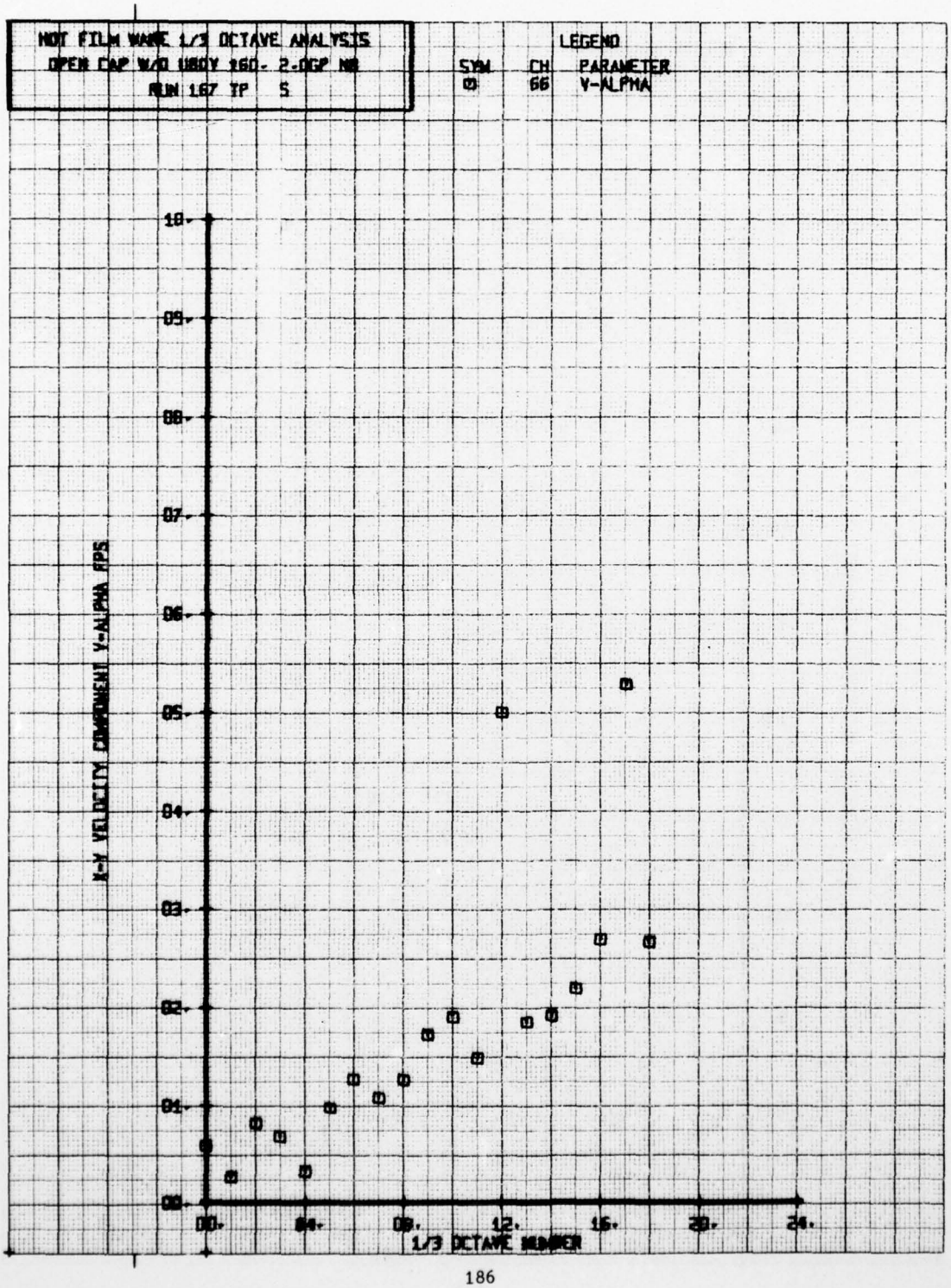

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O BODY 16R- 2.0GP NB
RUN 167 TP 5
LEGEND
SYM CH PARAMETER
0 65 BETA
10.
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LATERAL FLOW ANGLE, BETA - DEGREES
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1/3 OCTAVE NUMBER

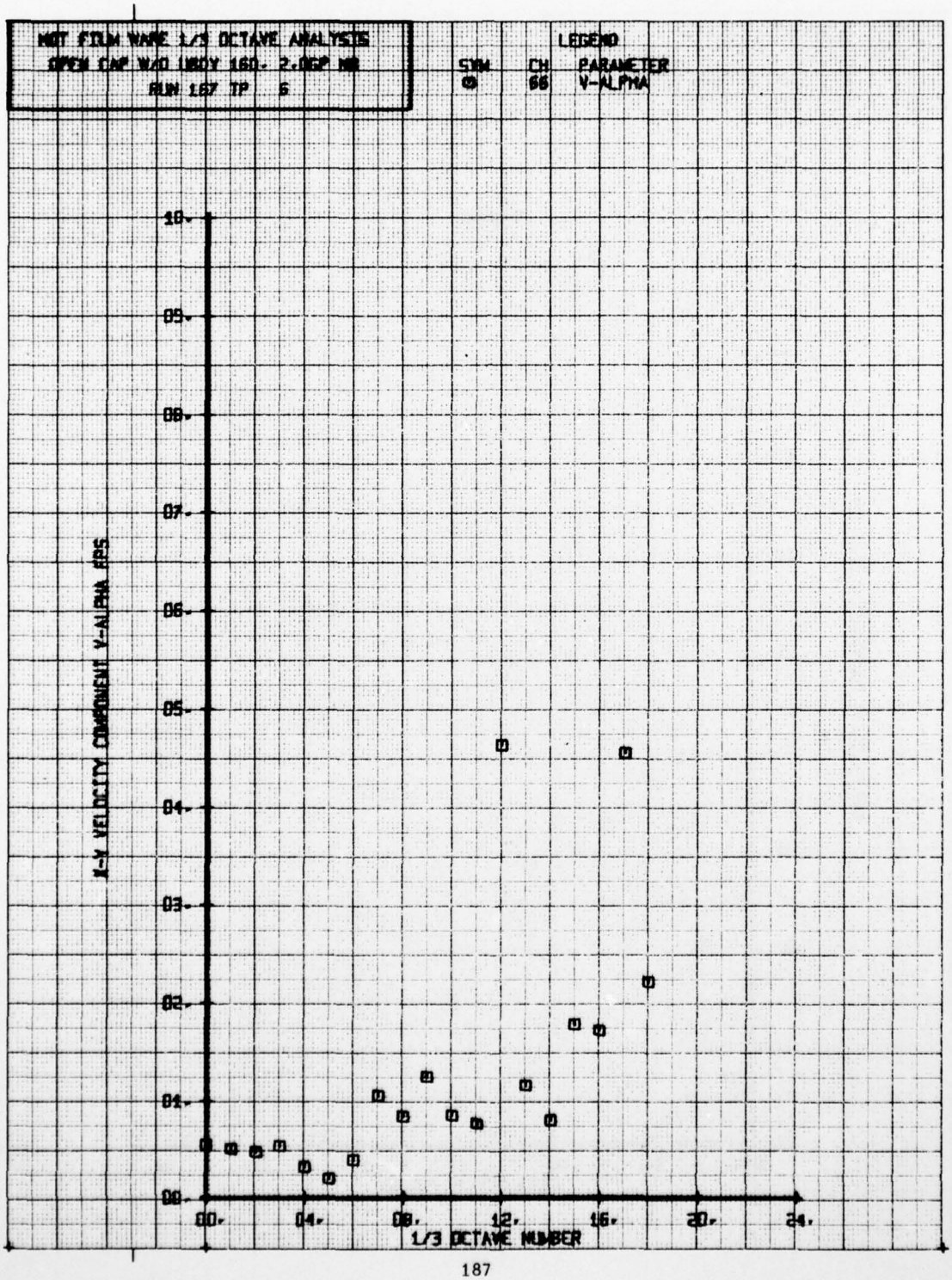

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O BODY 160. 2.0GP NB
RUN 167 TP 6
LEGEND
SYM CH PARAMETER
BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER

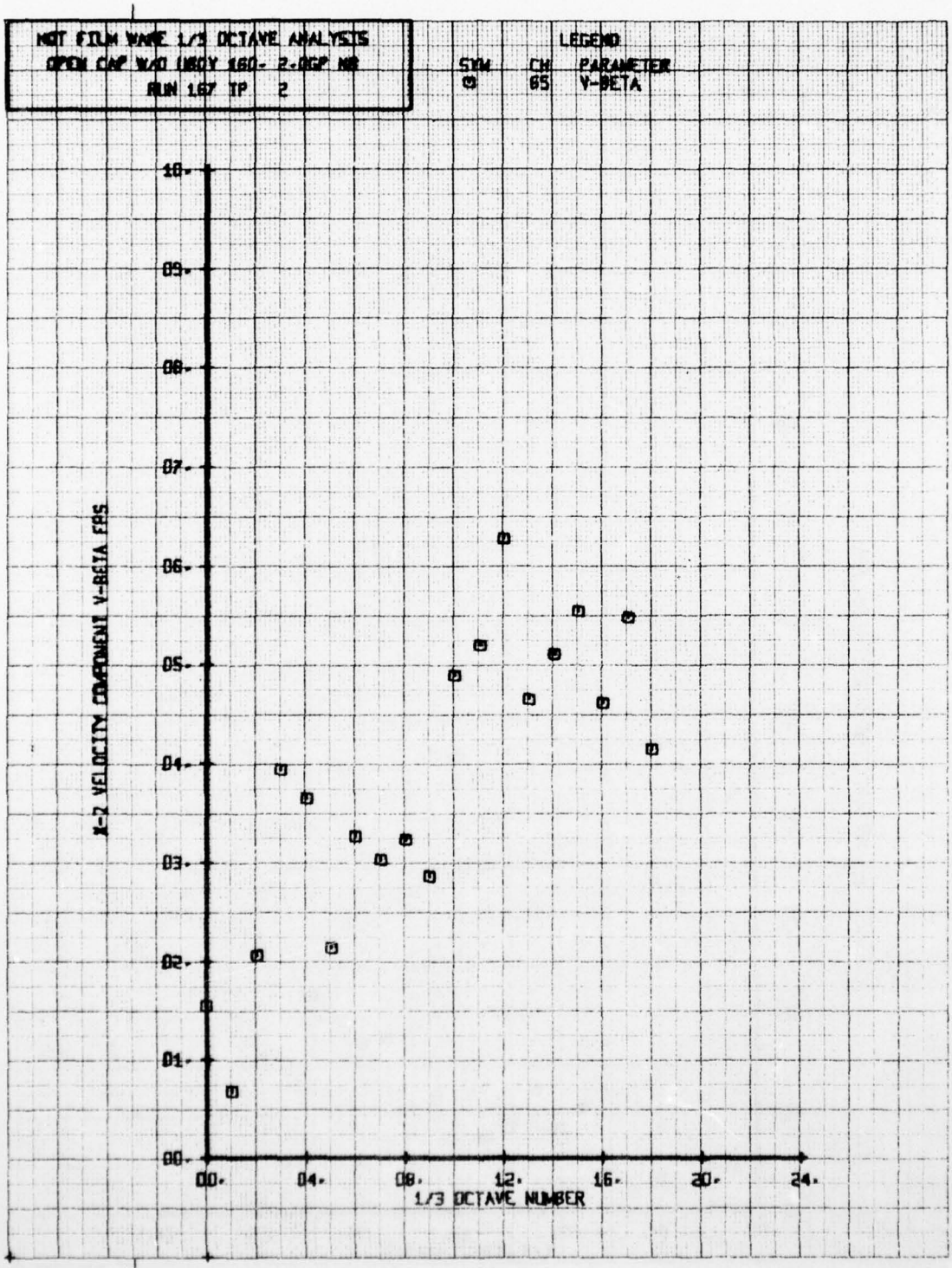

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY 160. 2.0GP MR
RUN 167 TP 2
LEGEND
SYM CH PARAMETER
66 V-ALPHA
10.
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1/3 OCTAVE NUMBER
K-V VELOCITY COMPONENT V-ALPHA RMS

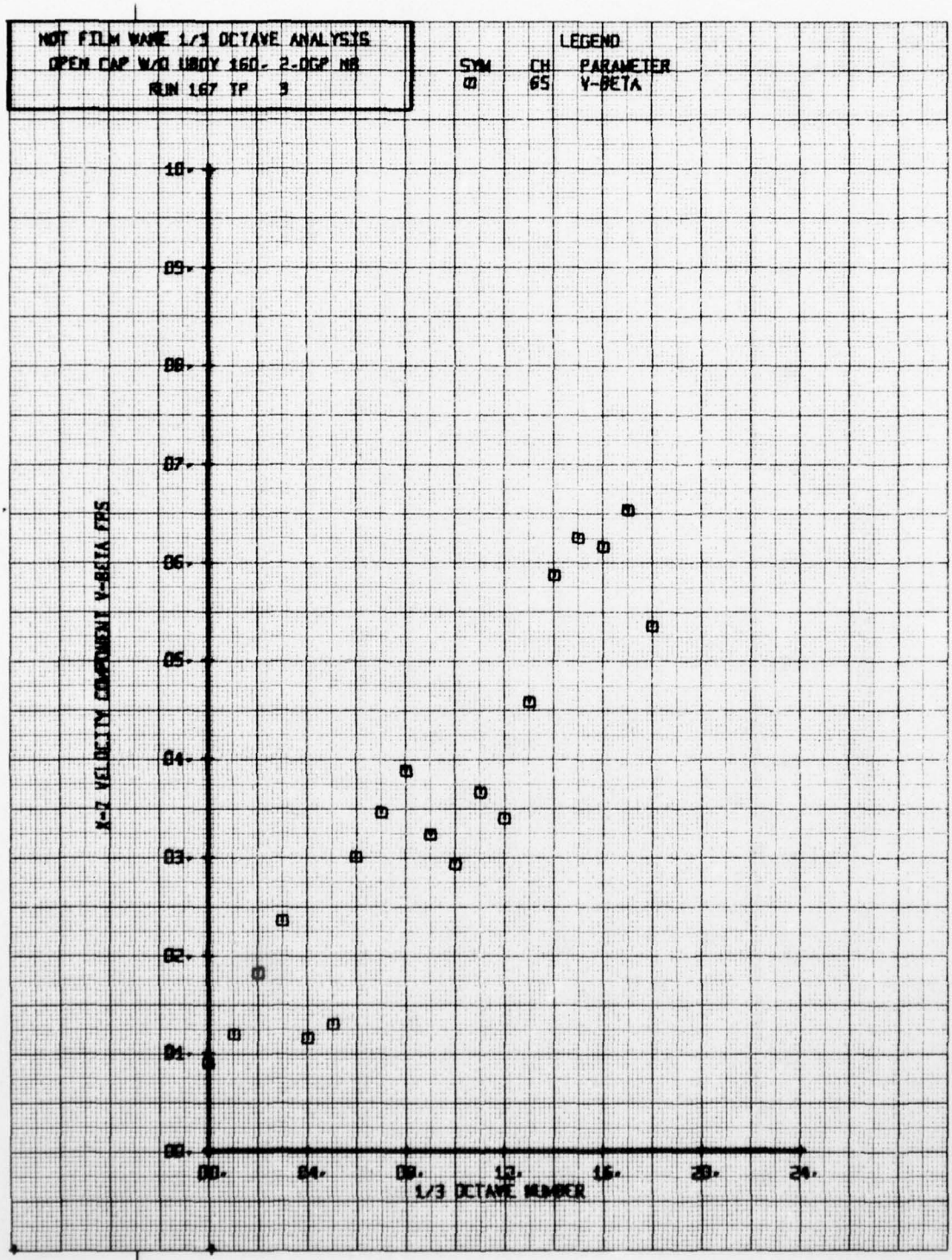

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O BODY 160- 2-OGP MB
RUN 167 TP 3
LEGEND
SYM CH PARAMETER
66 V-ALPHA
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X-Y VELOCITY COMPONENT V-ALPHA FPS
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24.
1/3 OCTAVE NUMBER

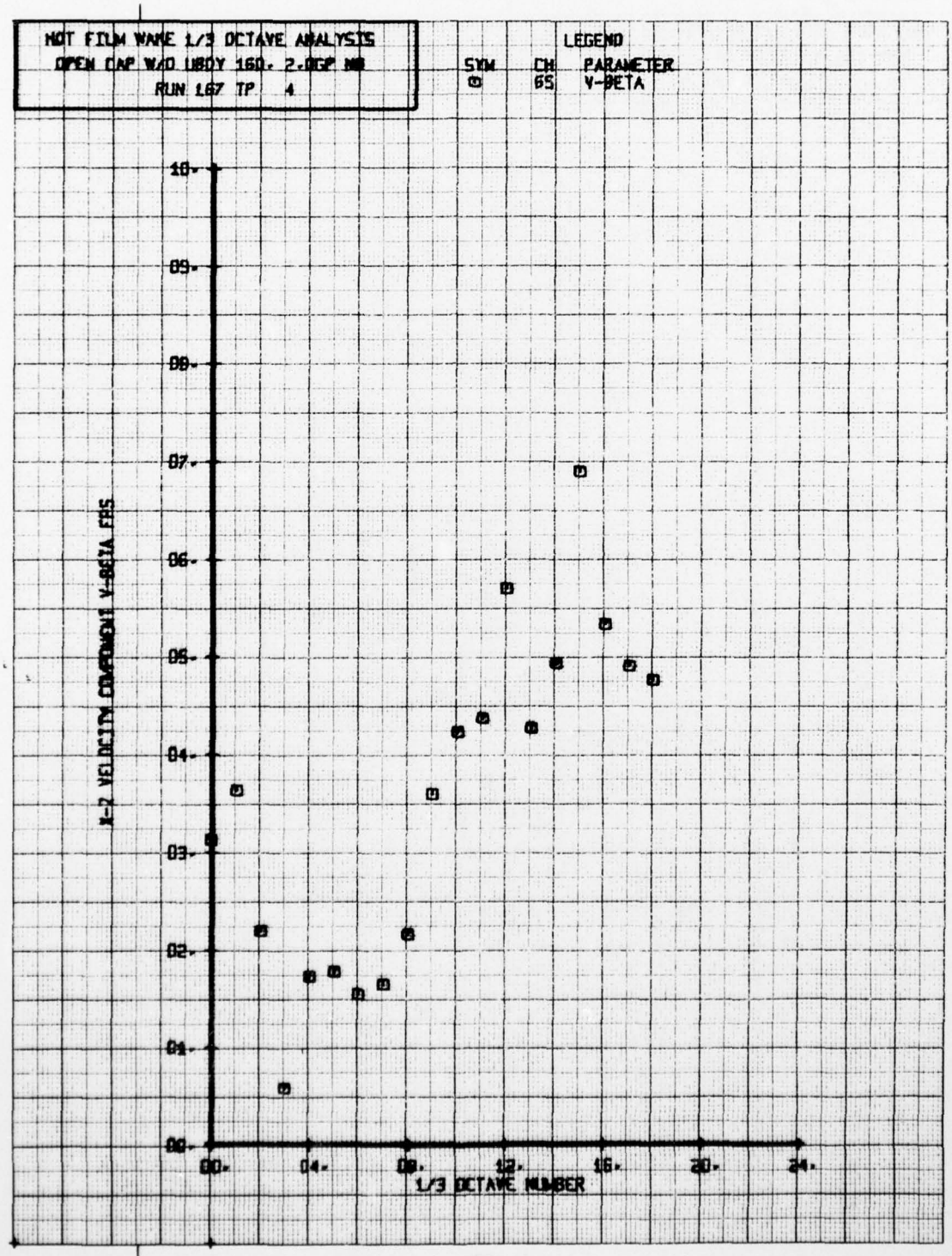

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O BODY 160. 2-DGP NB
RUN 167 TP 4
LEGEND
SYM CH PARAMETER
66 V-ALPHA
A-V VELOCITY COMPONENT V-ALPHA FPS
1/3 OCTAVE BANDS

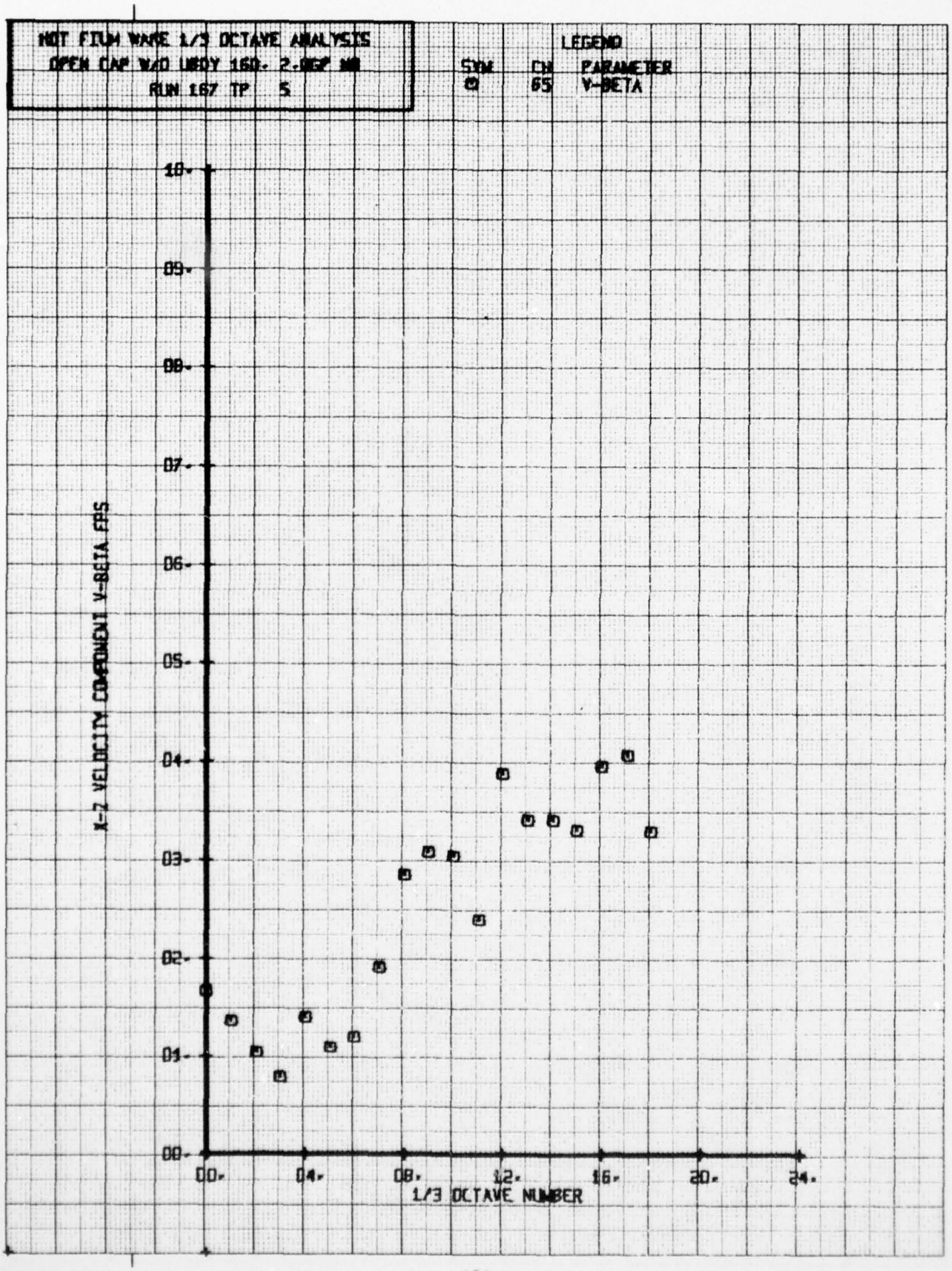

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY 160. 2.0GP NB
RUN 167 TP 5
LEGEND
SYM CH PARAMETER
66 V-ALPHA
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
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16.
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24.
1/3 OCTAVE NUMBER
V-V VELOCITY COMPONENT V-ALPHA FPS


HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O WBOY 160. 2.0GP MR
RUN 167 TP 6
LEGEND
SYM CH PARAMETER
66 V-ALPHA
10.
09.
08.
07.
06.
05.
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00.
X-V VELOCITY COMPONENT V-ALPHA FPS
00.
04.
08.
12.
16.
20.
24.
1/3 OCTAVE NUMBER


HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O IBOY 160- 2.0GP MR
RUN 167 TP 2
LEGEND
SYM CH PARAMETER
65 V-BETA
X-Z VELOCITY COMPONENT V-BETA FRS
1/3 OCTAVE NUMBER
10.
09.
08.
07.
06.
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04.
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16.
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24.

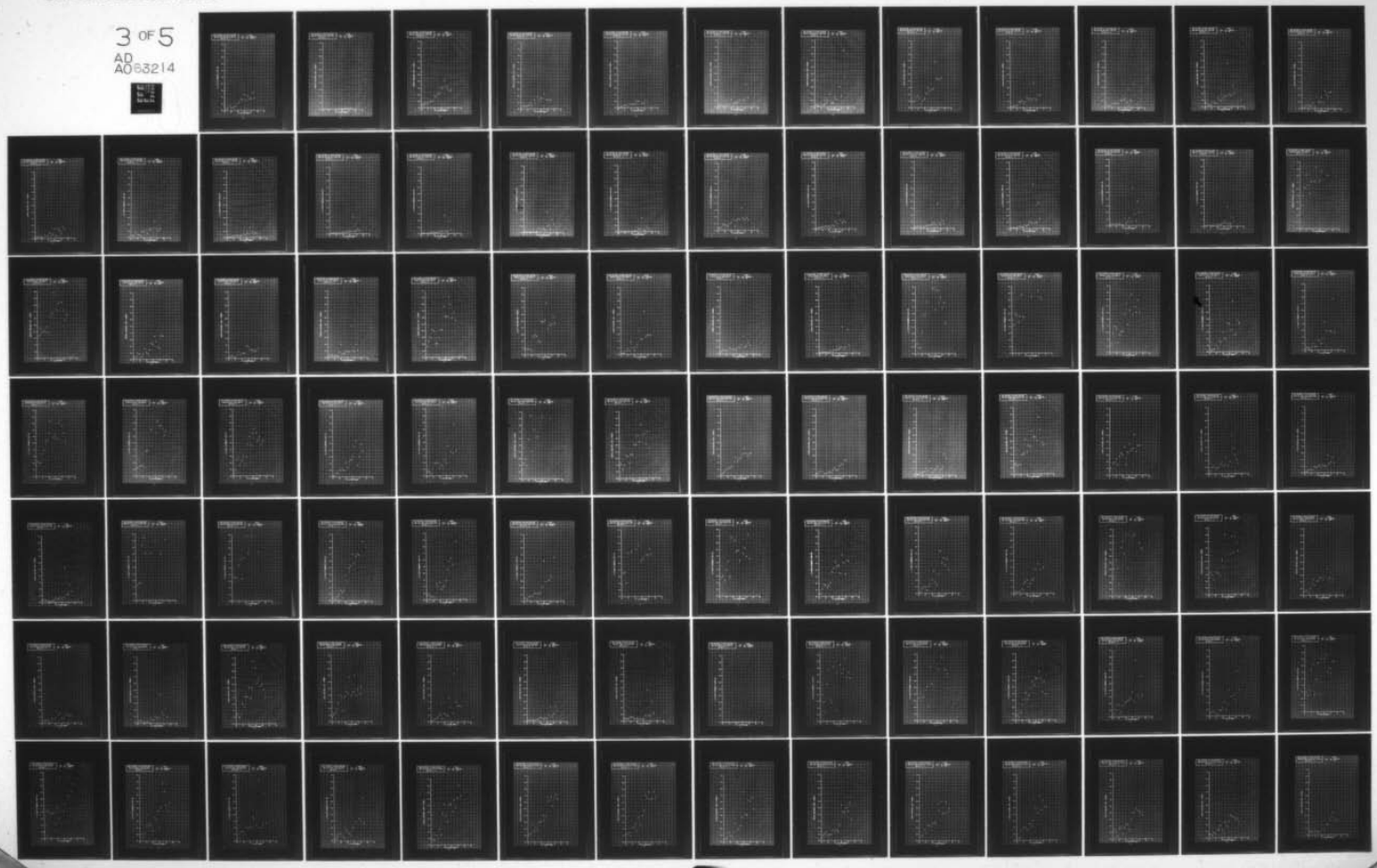

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY 160. 2-DGP NB
RUN 167 TP 3
LEGEND
SYM CH PARAMETER
65 V-BETA
X-Z VELOCITY COMPONENT V-BETA FPS
1/3 OCTAVE NUMBER

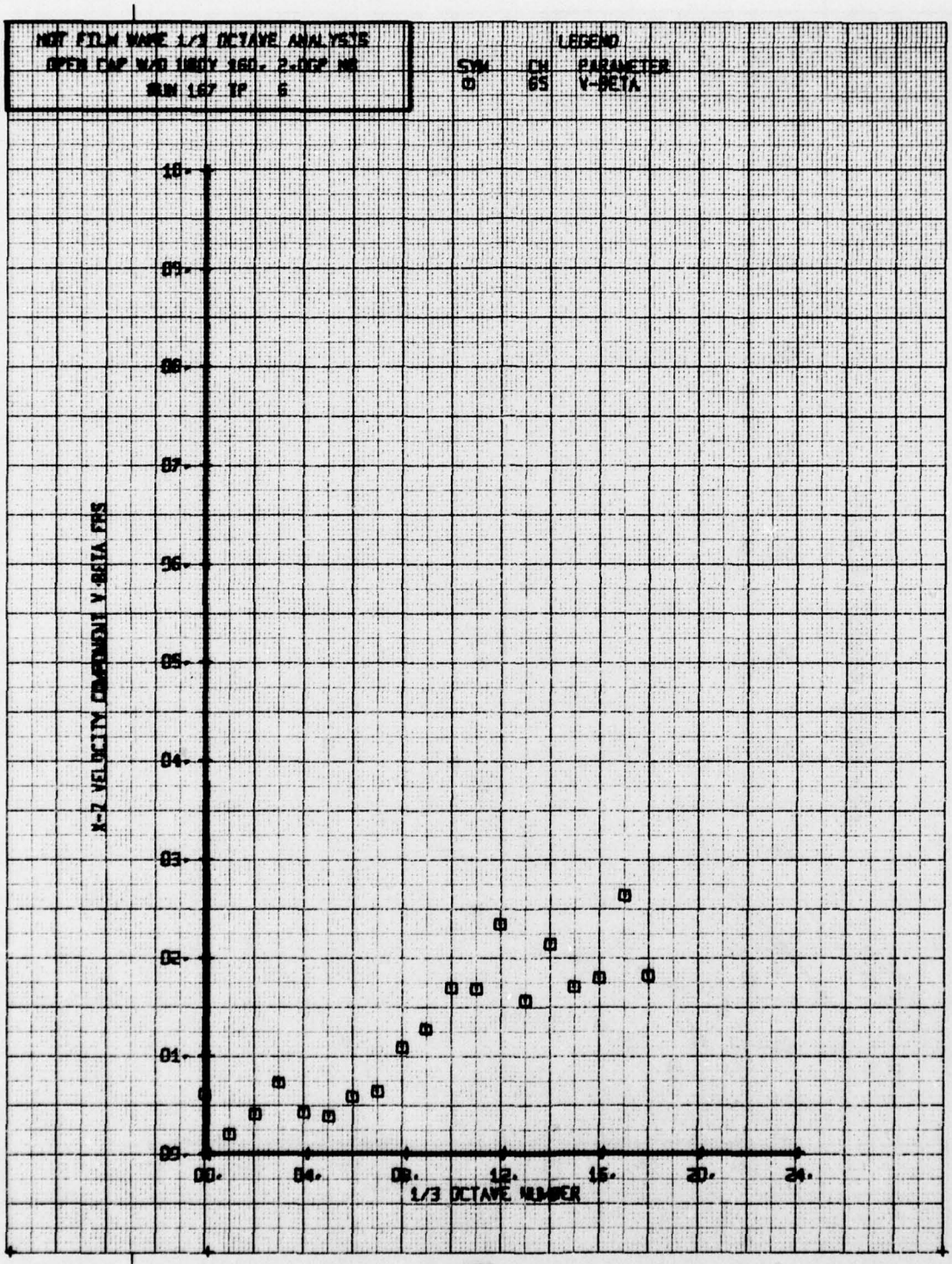

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBDY 160. 2.0GP NB
RUN 167 TP 4
LEGEND
SYM CH PARAMETER
65 V-BETA
10.
09.
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24.
1/3 OCTAVE NUMBER
SQR VIBR-V BETA COMPOUND VELOCITY K-2

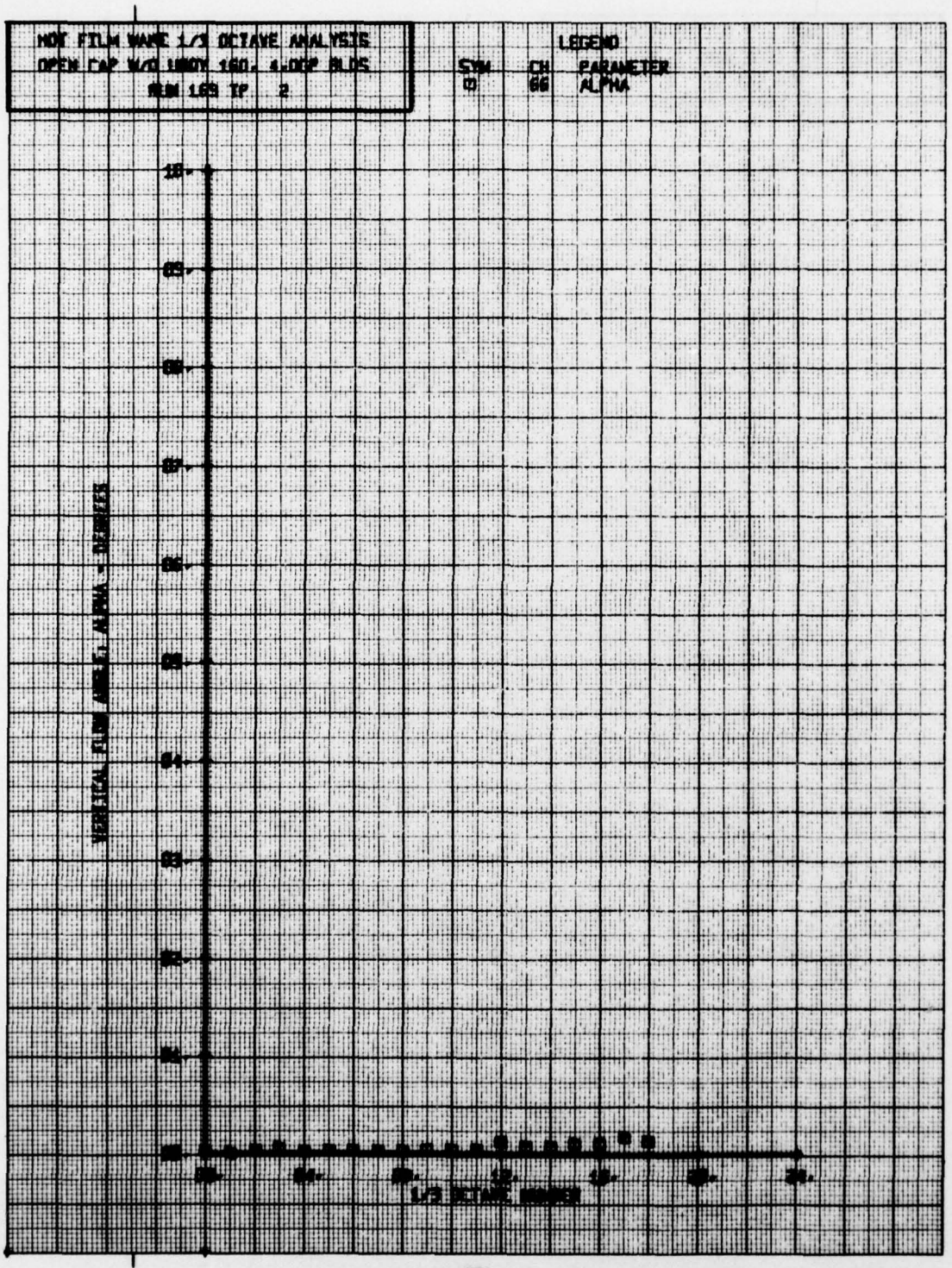

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBDY 160. 2.0GP MR
RUN 167 TP 5
LEGEND
SYM CH PARAMETER
65 V-BETA
10.
09.
08.
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06.
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04.
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00.
X-Z VELOCITY COMPONENT V-BETA FPS
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04.
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16.
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24.
1/3 OCTAVE NUMBER

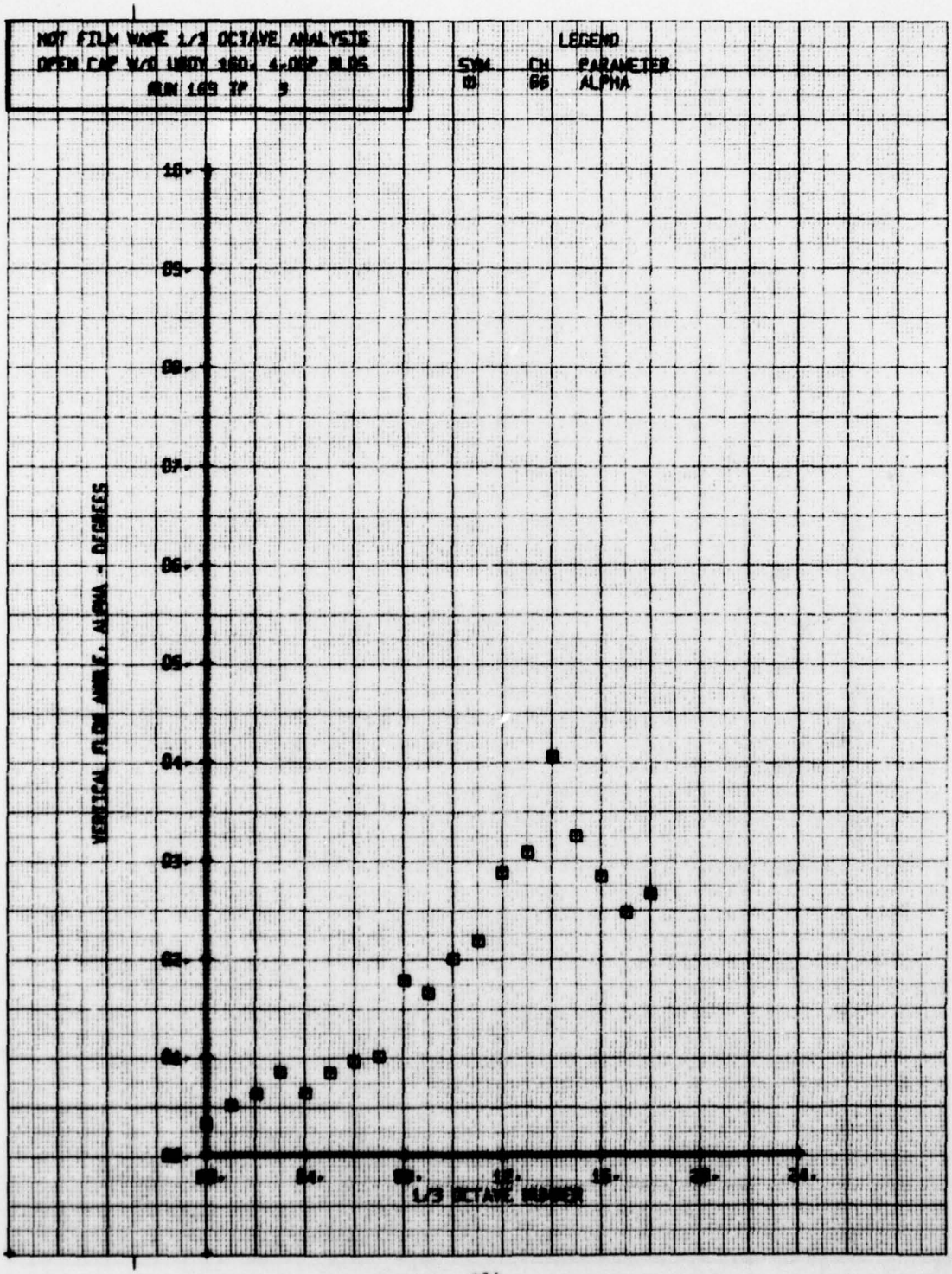
AD-A063 214 BOEING VERTOL CO PHILADELPHIA PA F/G 1/3
INTERACTIONAL AERODYNAMICS OF THE SINGLE ROTOR HELICOPTER CONFI--ETC(U)
SEP 78 P F SHERIDAN DAAJ02-77-C-0020
UNCLASSIFIED USARTL-TR-78-23D NL

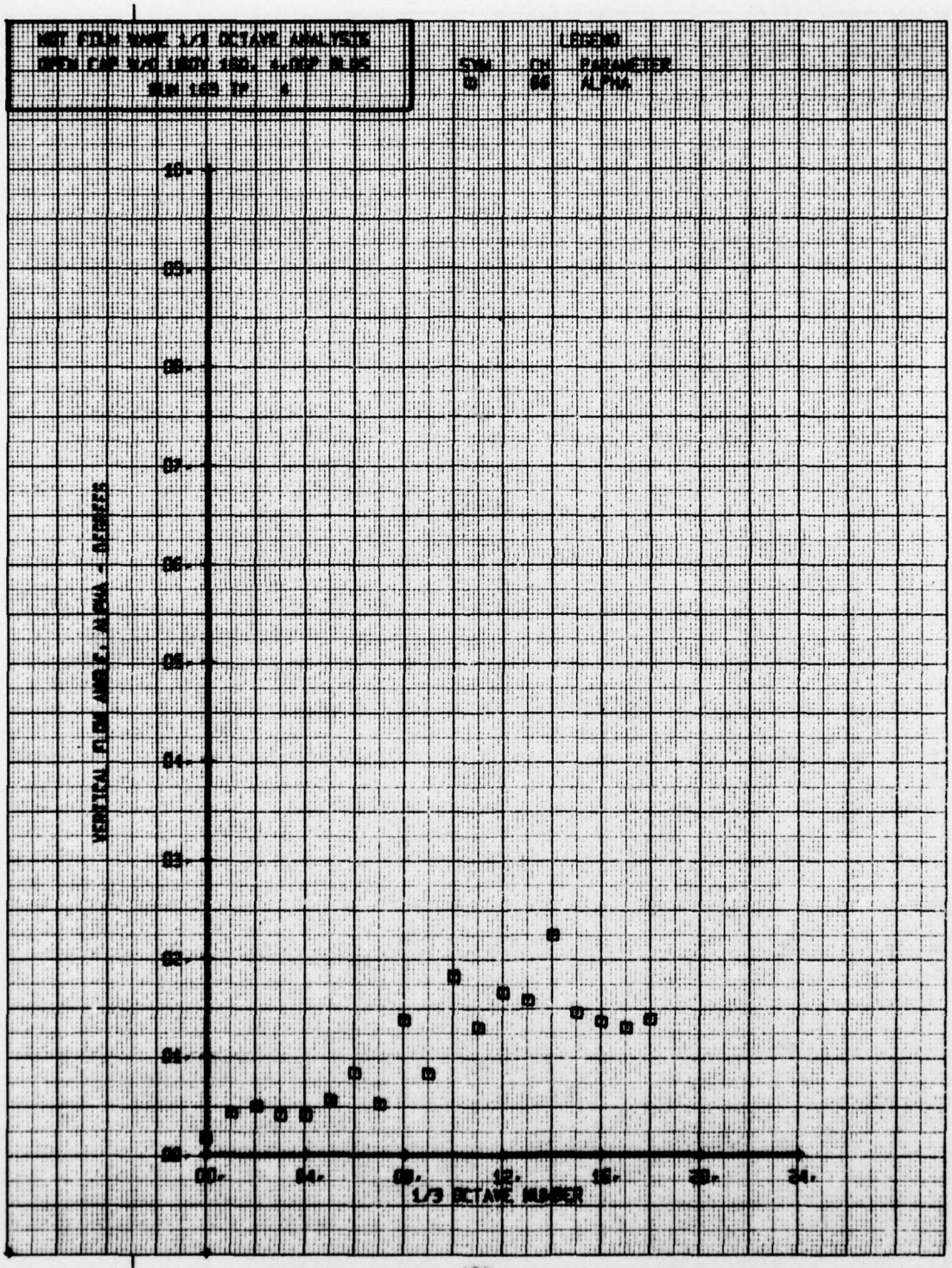
3 OF 5
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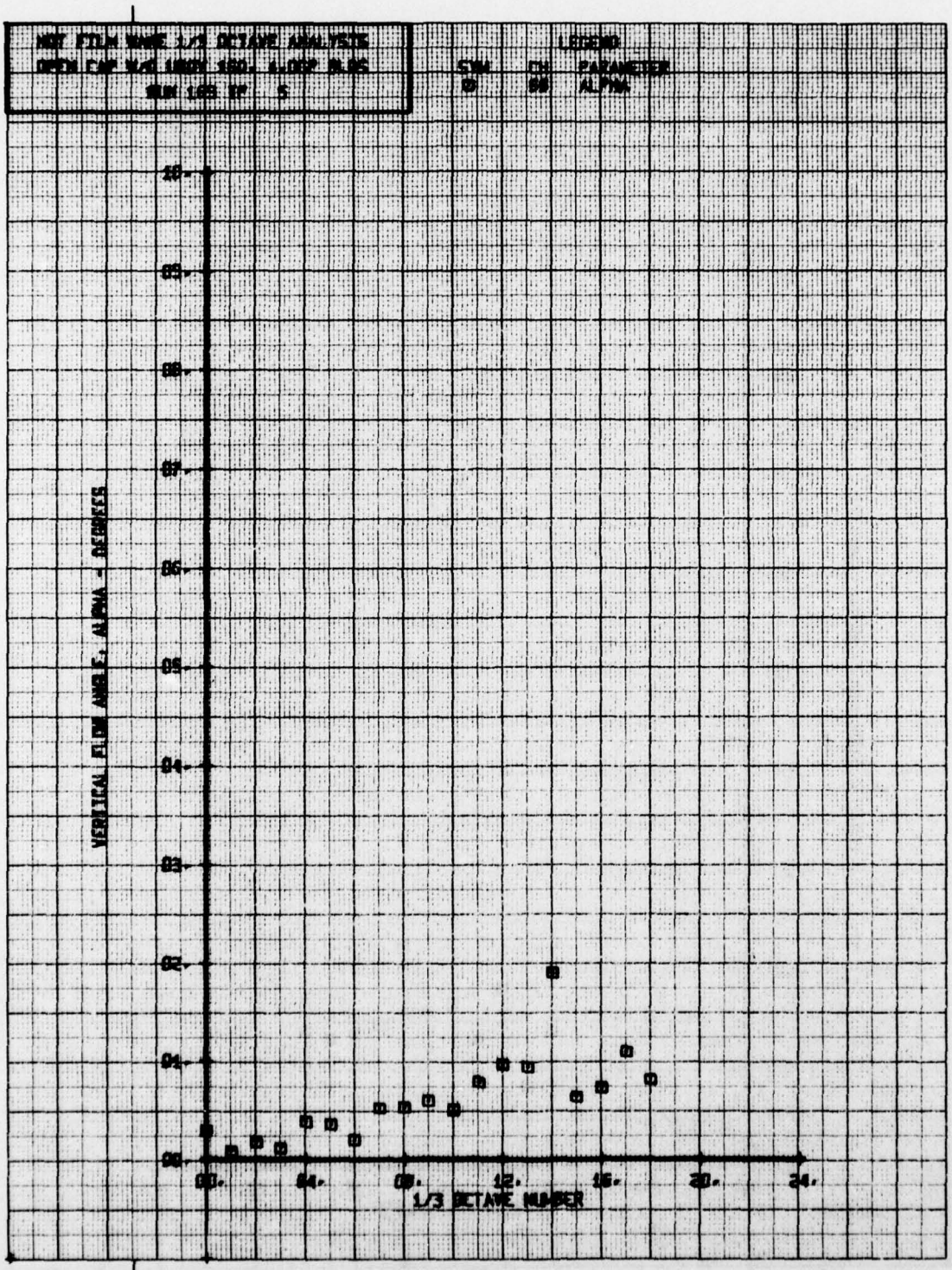


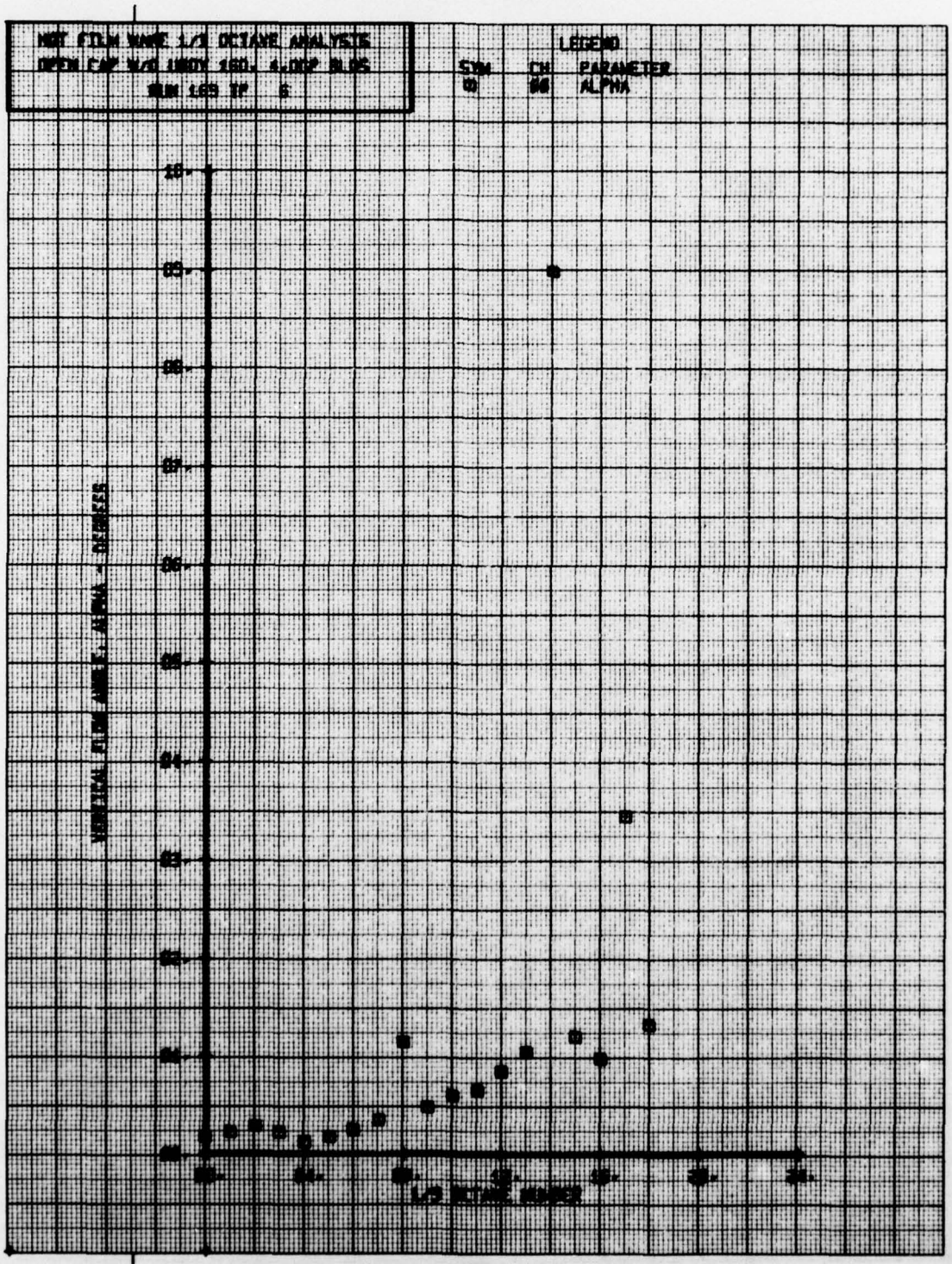

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O 1BODY 160. 2-DGP NR
RUN 167 TP 6
LEGEND
SYM CH PARAMETER
6S V-BETA
X-Z VELOCITY COMPONENT V-BETA FPS
1/3 OCTAVE NUMBER
00.
04.
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12.
16.
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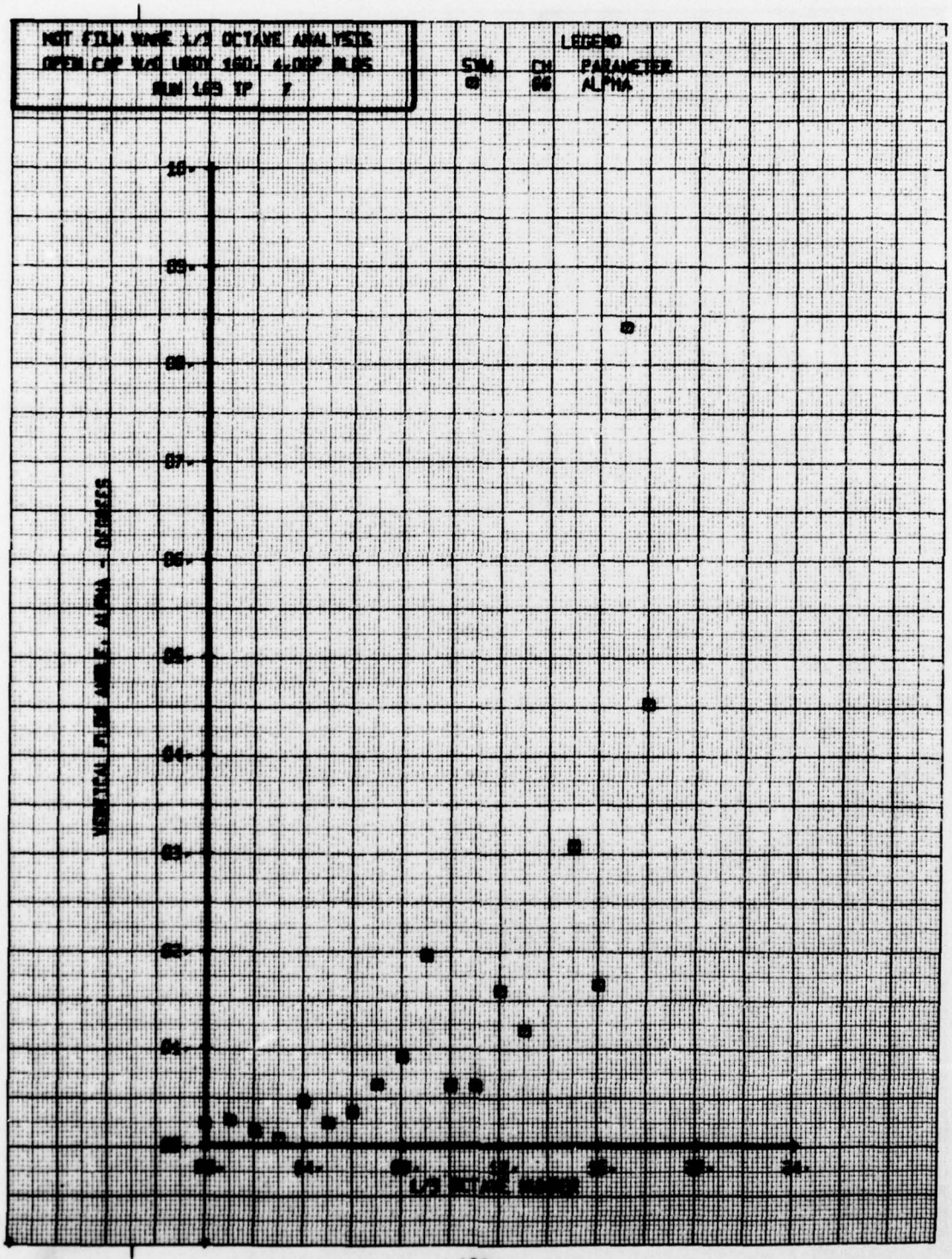

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O LEADY 160. 4.0DP RLDS
REM 169 TP 2
LEGEND
SYM CH PARAMETER
66 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE BANDS

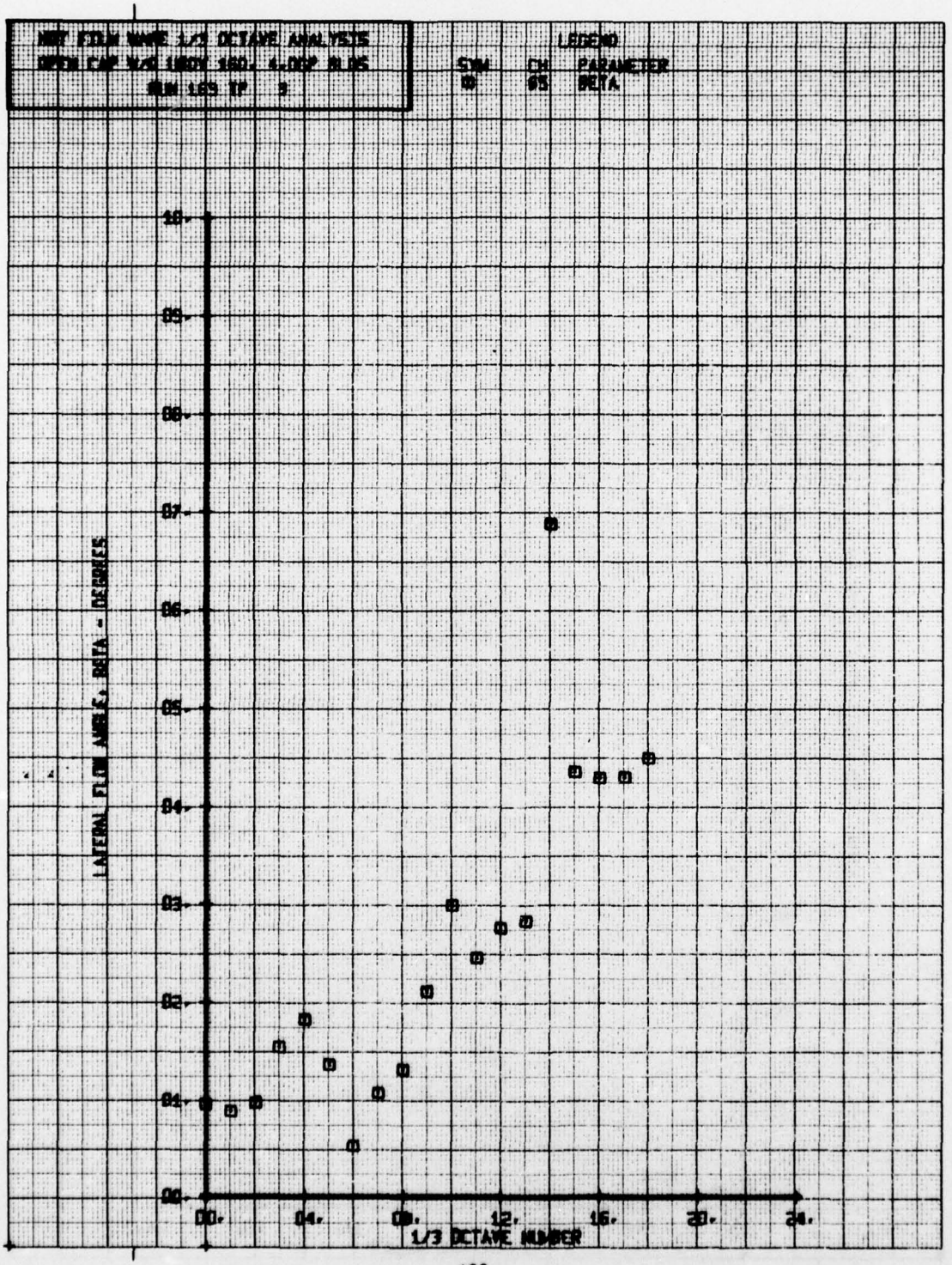

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UNDY 160. 4.DEP BLDS
RUN 163 TP 3
LEGEND
SYM CH PARAMETER
0 66 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

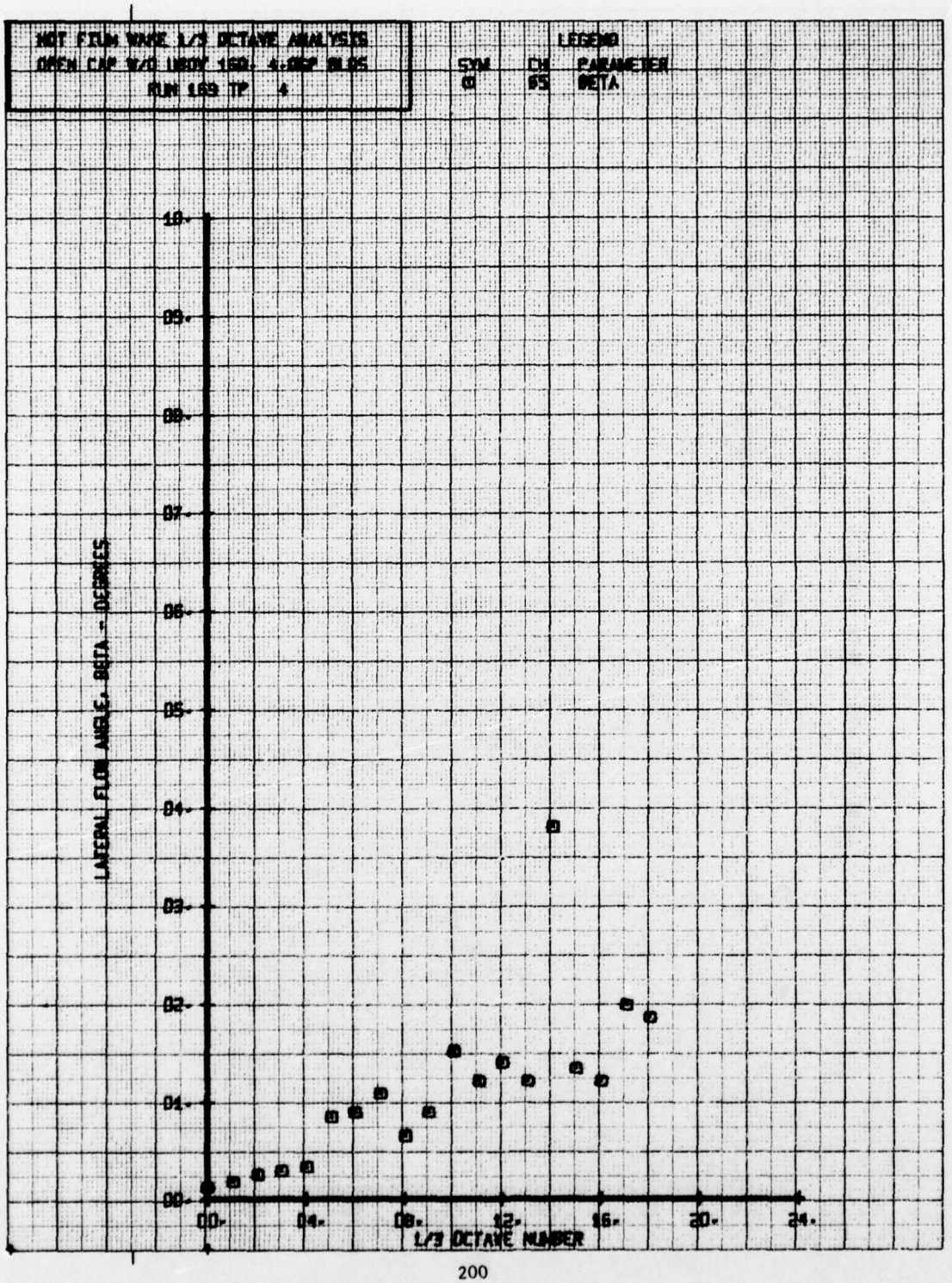

LEGEND
SYM CH PARAMETER
ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

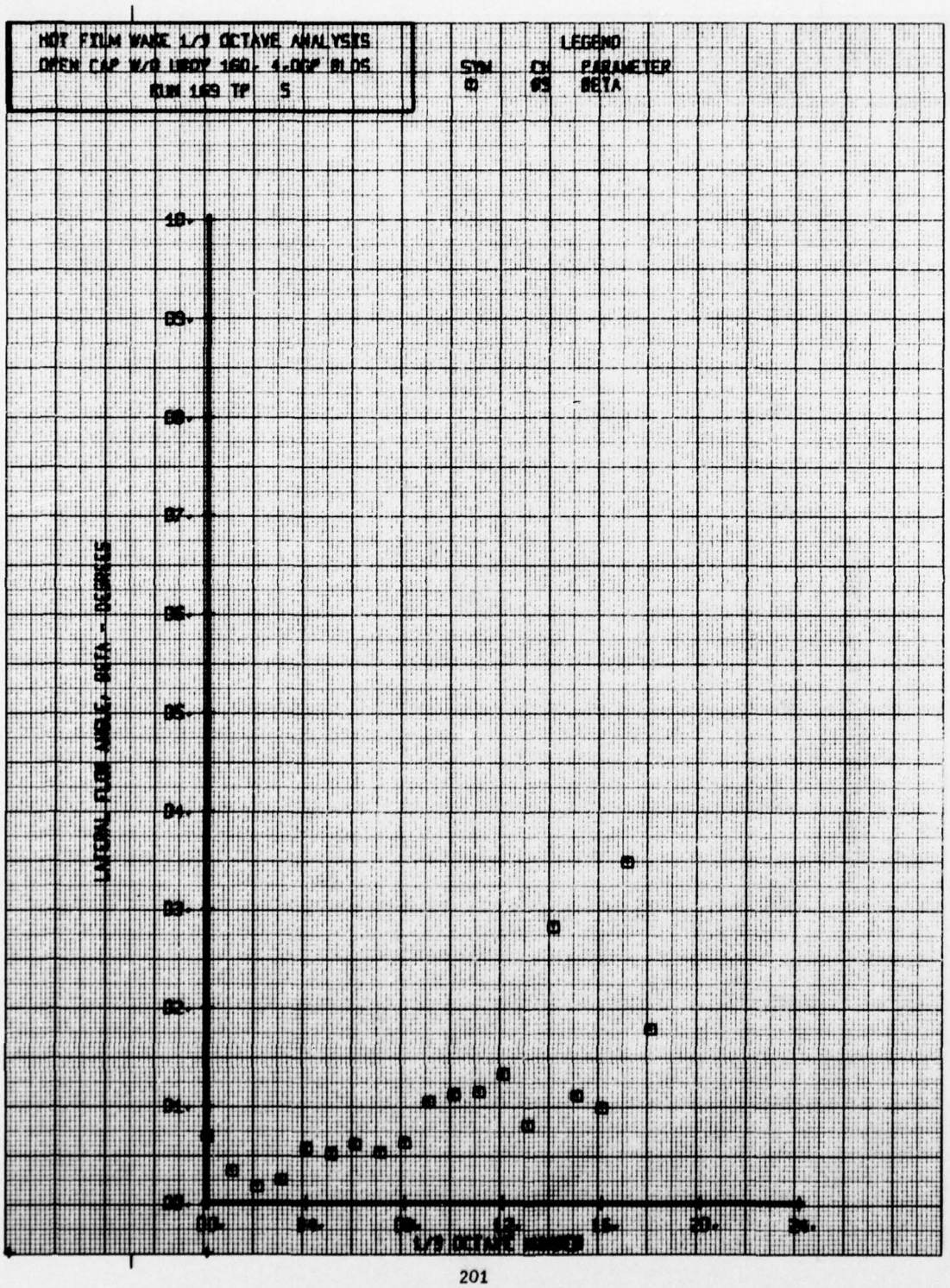

LEGEND
SYM CH PARAMETER
ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

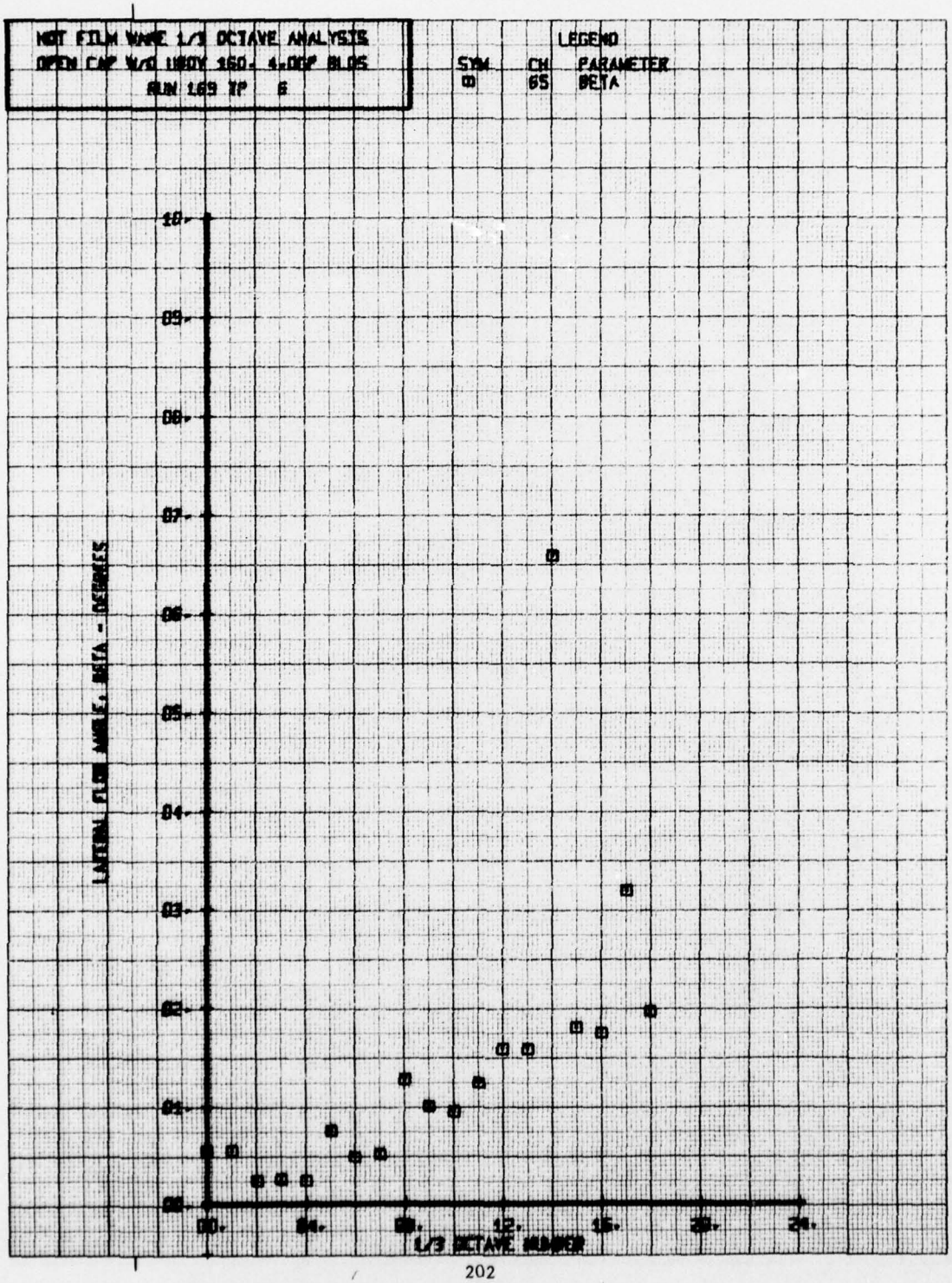

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UNDY 180. 4.00" BLDS
RUN 165 TP 6
LEGEND
SYM CH PARAMETER
80 ALPHA
VERTICAL DIM AMPL, ALPHA - DEGREES
1/3 OCTAVE BANDS

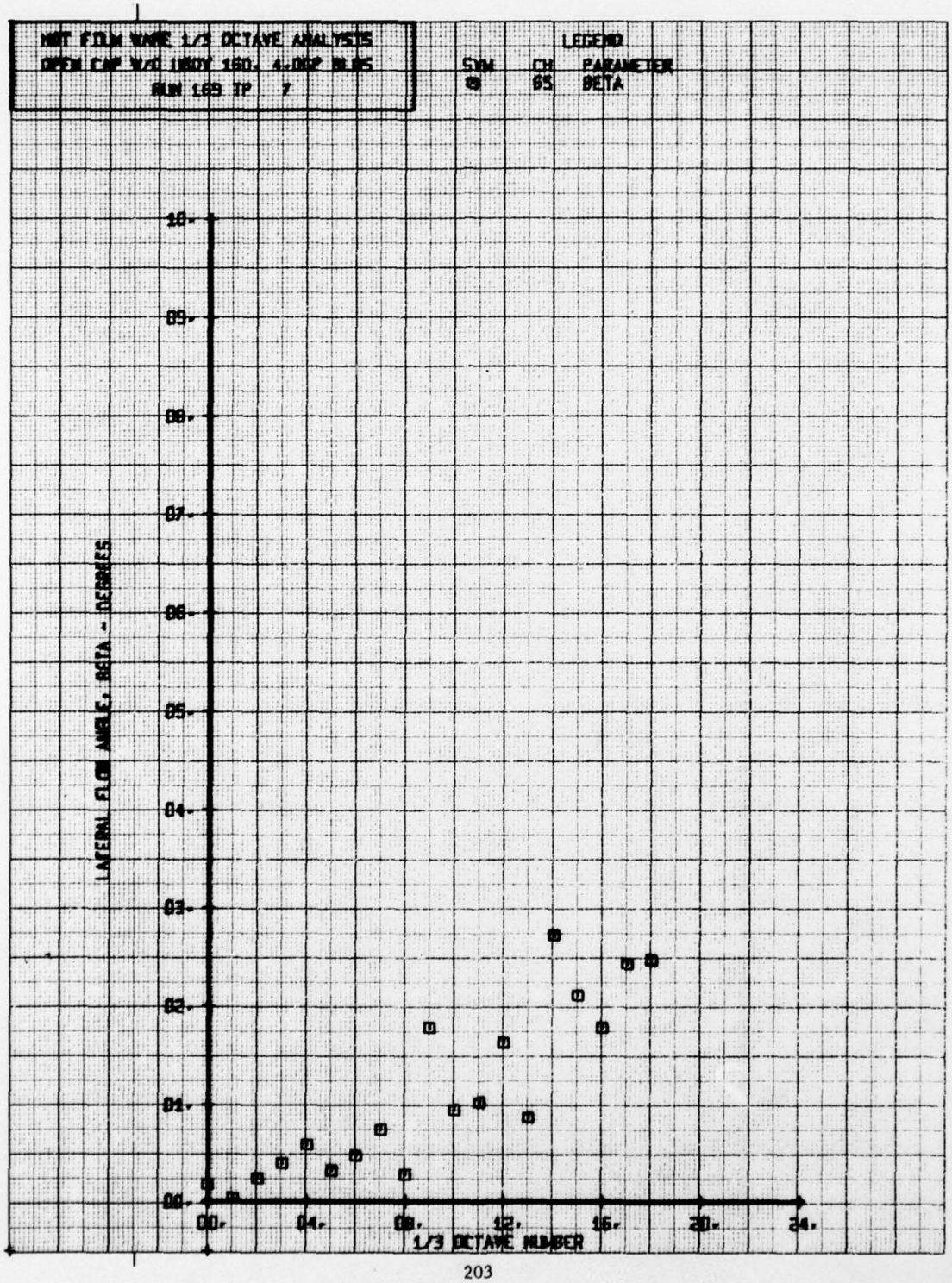

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBODY 160. 4.DEP BLDS
RUN 183 TP 7
LEGEND
SYM CH PARAMETER
66 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE BANDS

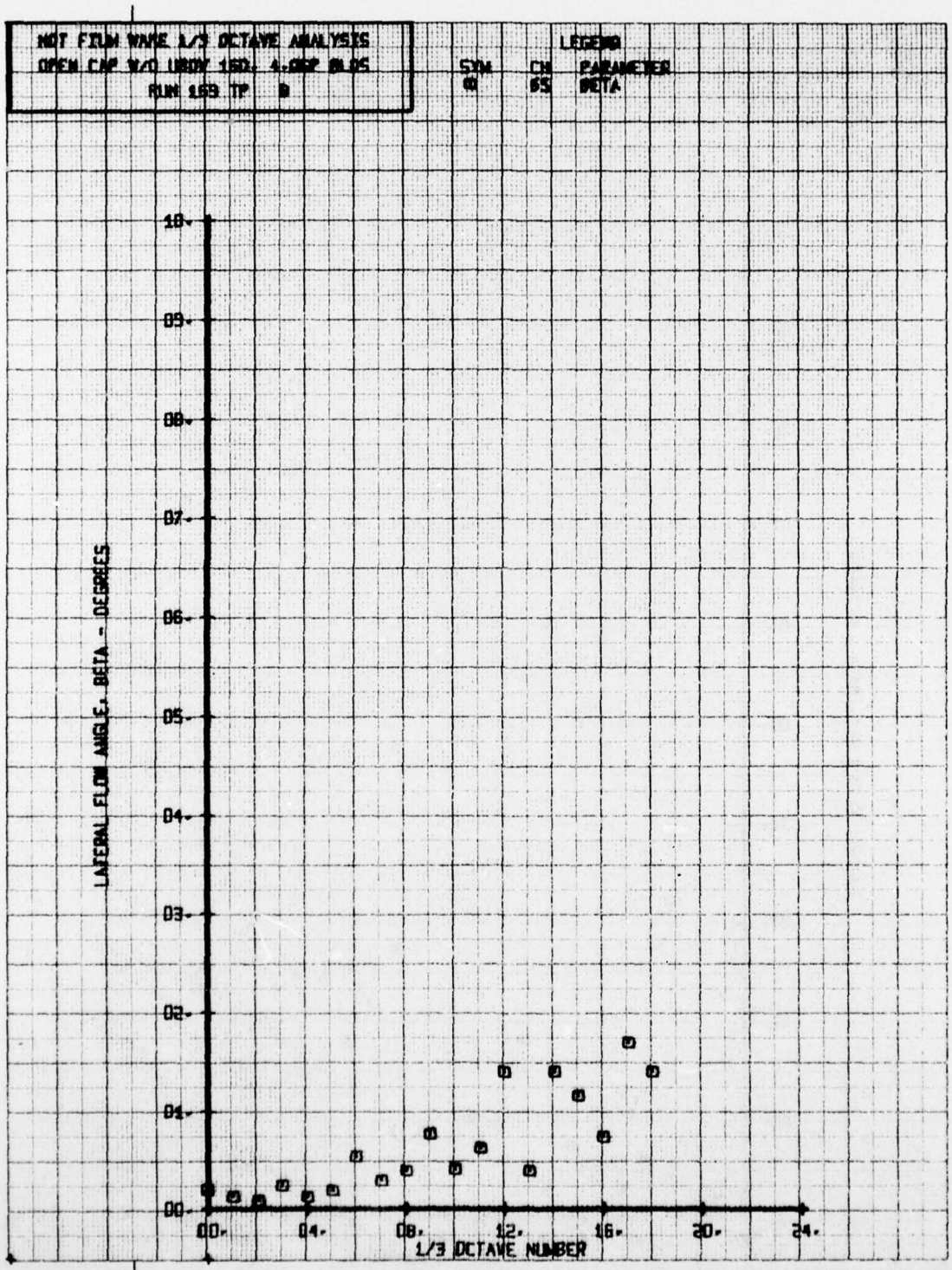

NRF FILM WAVE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O (BODY 180, 4.DEP BLDS
RUN 105 TP 3
LEGEND
SYM CH PARAMETER
BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER
00.
04.
08.
12.
16.
20.
24.

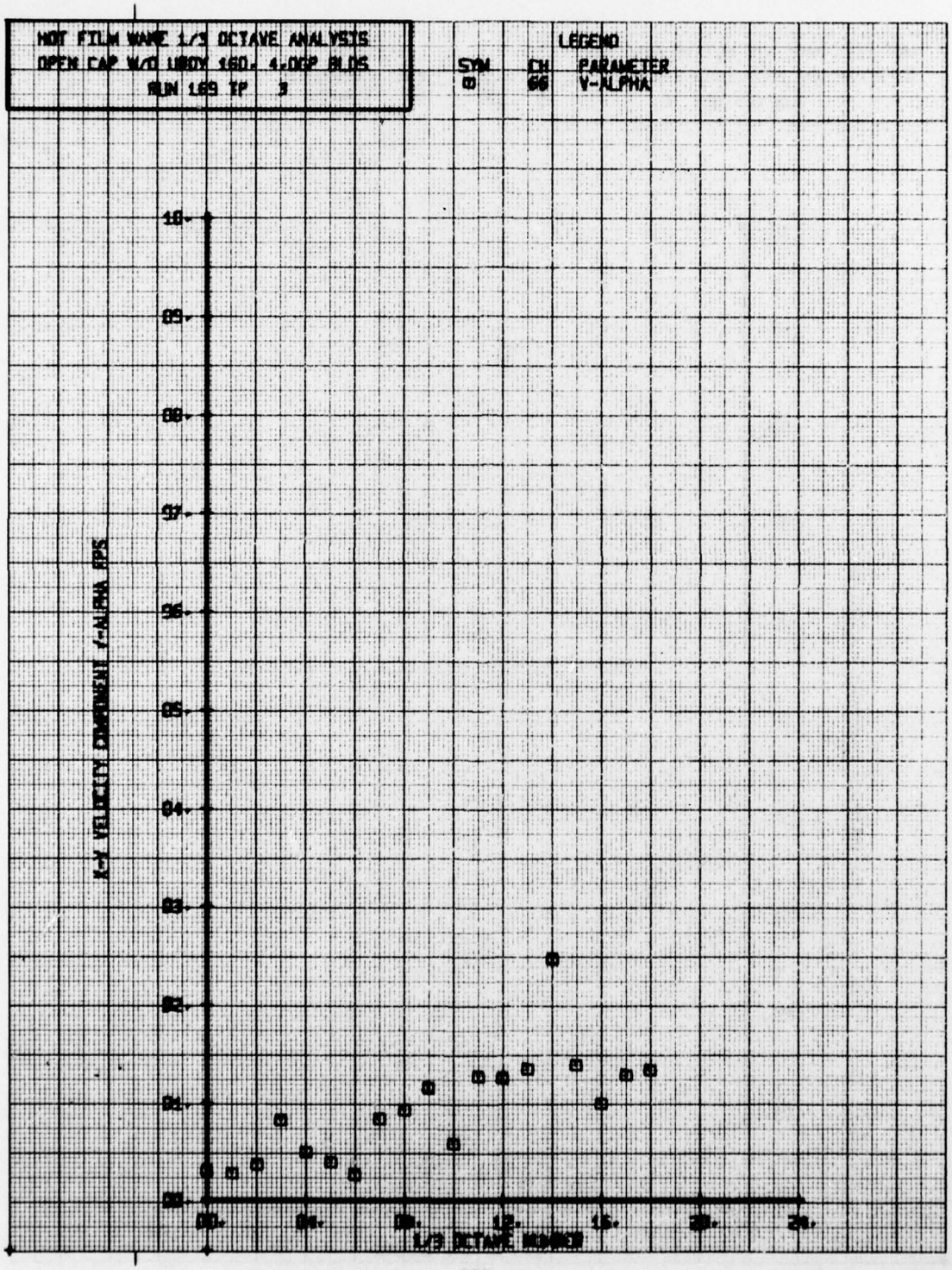

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UNDY 160. 4-DEP BLDS
RUN 169 TP 4
LEGEND
SYM CH PARAMETER
BETA
10.
09.
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LATERAL FLOW ANGLE, BETA - DEGREES
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04.
08.
12.
16.
20.
24.
1/3 OCTAVE NUMBER

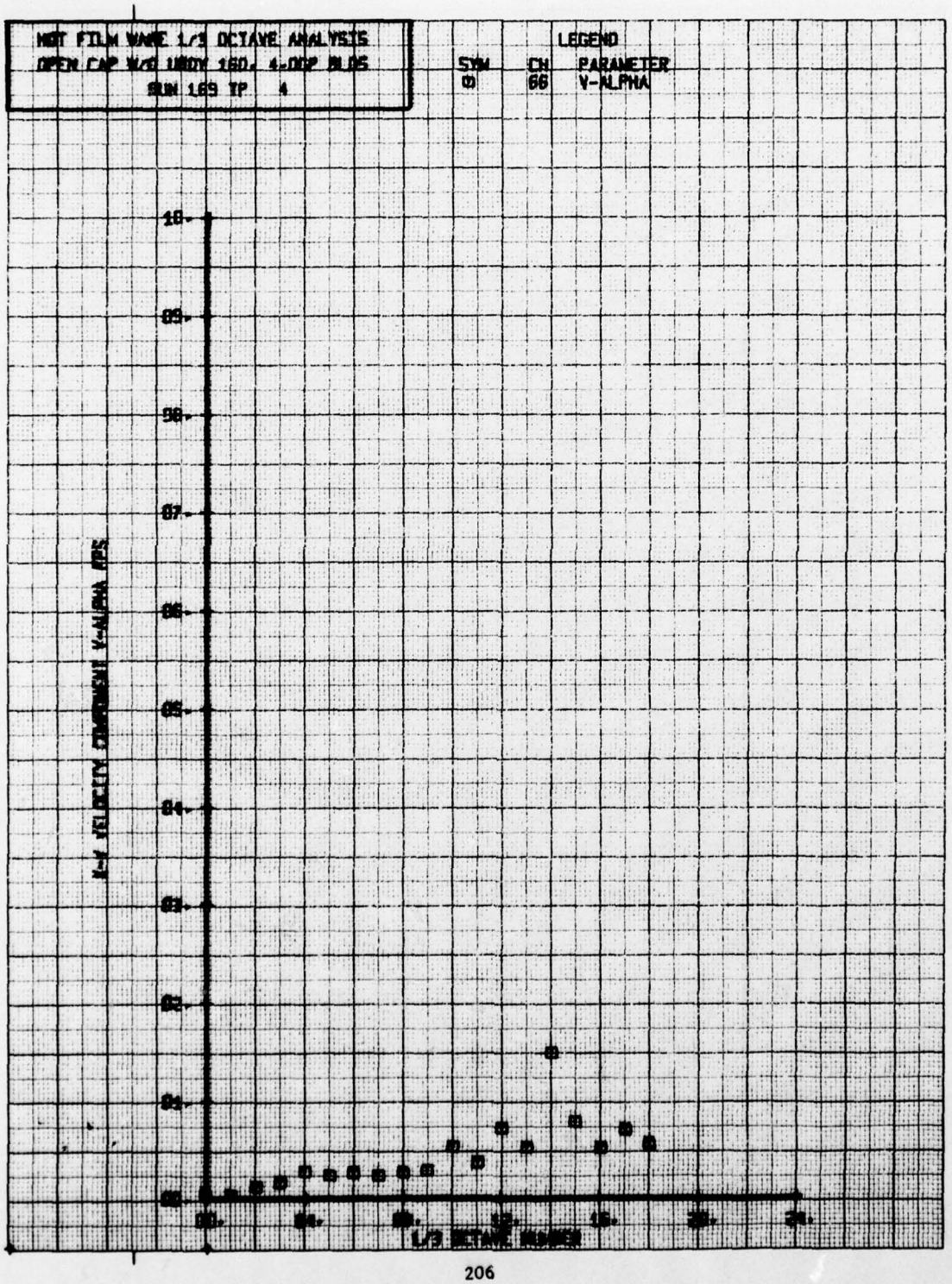

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBDP 160. 4.0GP BLDS
RUN 169 TP 5
LEGEND
STN
CH
PARAMETER
BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER

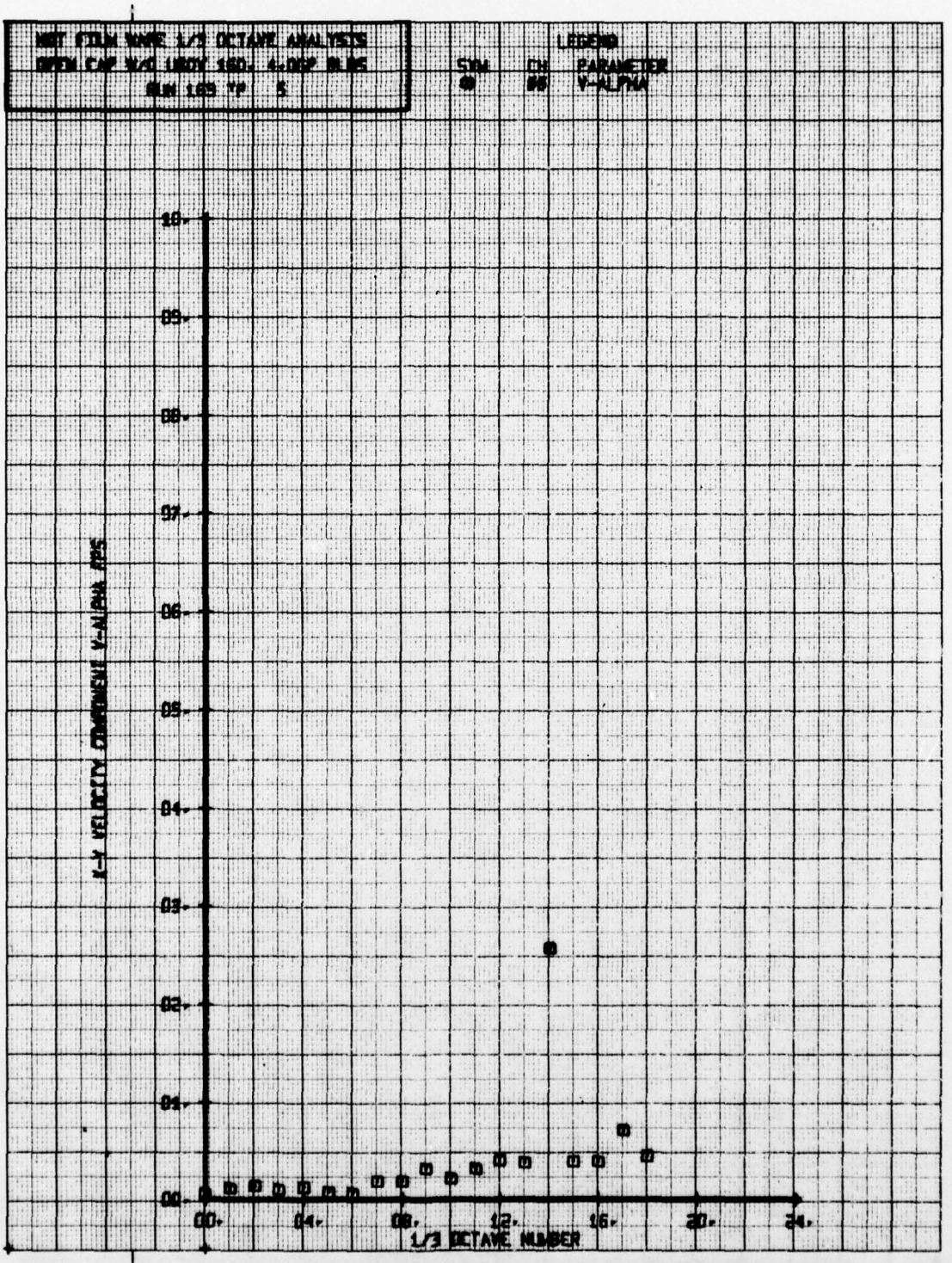

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O HBDY 160. 4.00" BLDS
RUN 169 TP 6
LEGEND
SYM CH PARAMETER
65 BETA
10.
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07.
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24.
1/3 OCTAVE NUMBER

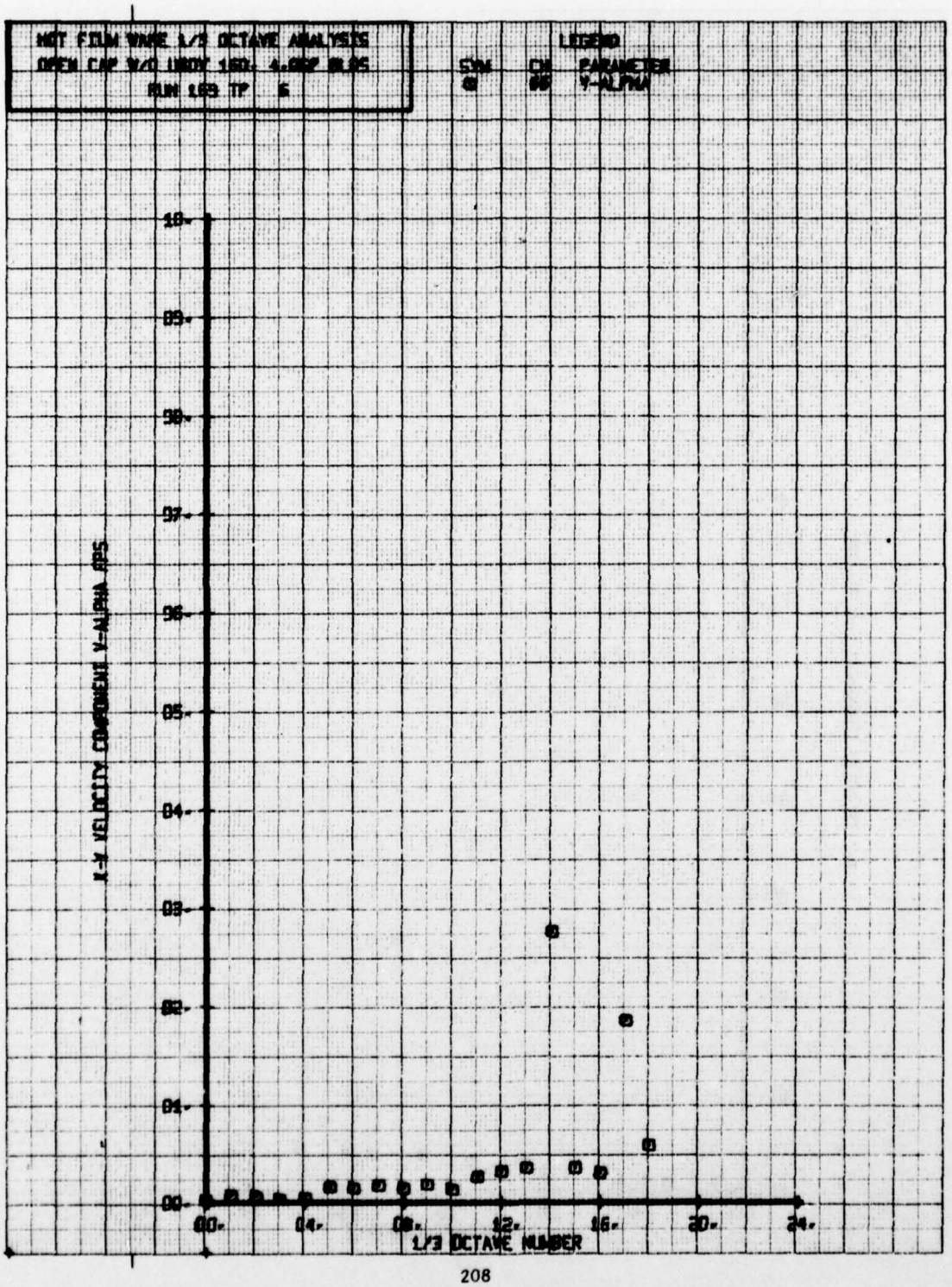

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UNDY 160. 4.DEG BLWS
RUN 169 TP 7
LEGEND
SYM CH PARAMETER
69 BETA
10.
09.
08.
07.
06.
05.
04.
03.
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00.
LATERAL FLOW ANGLE, BETA - DEGREES
00.
04.
08.
12.
16.
20.
24.
1/3 OCTAVE NUMBER

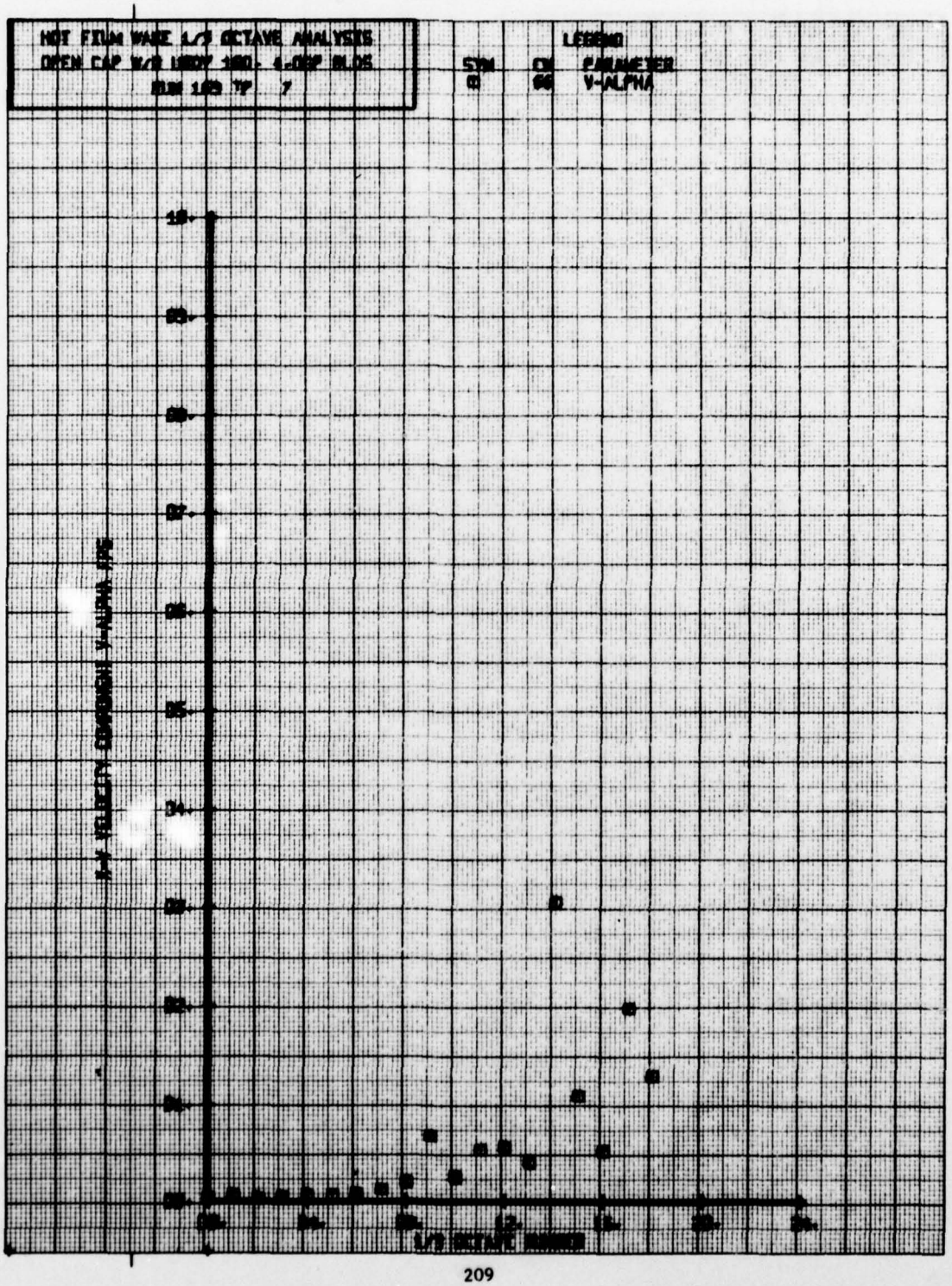

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOW 150. 4.0DP BLDS
RUN 153 TP 0
LEGEND
SYM CH PARAMETER
0 65 BETA
10.
09.
08.
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06.
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04.
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02.
01.
00.
LATERAL FLOW ANGLE, BETA - DEGREES
00.
04.
08.
12.
16.
20.
24.
1/3 OCTAVE NUMBER

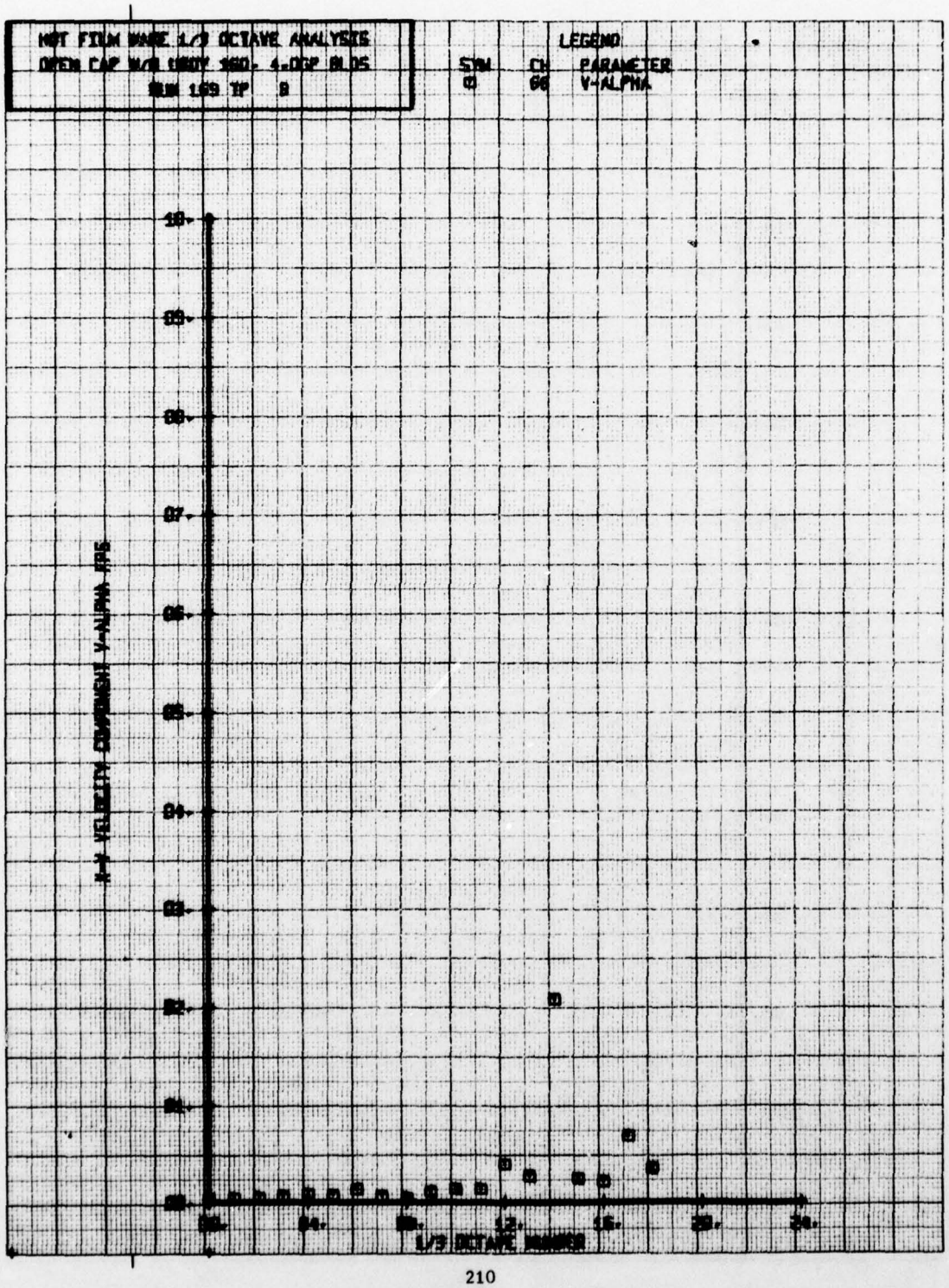

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBODY 160. 4.0DP BLDS
RUN 169 TP 3
LEGEND
SYM CH PARAMETER
66 V-ALPHA
X-Y VELOCITY COMPONENT (-ALPHA RPS
1/3 OCTAVE

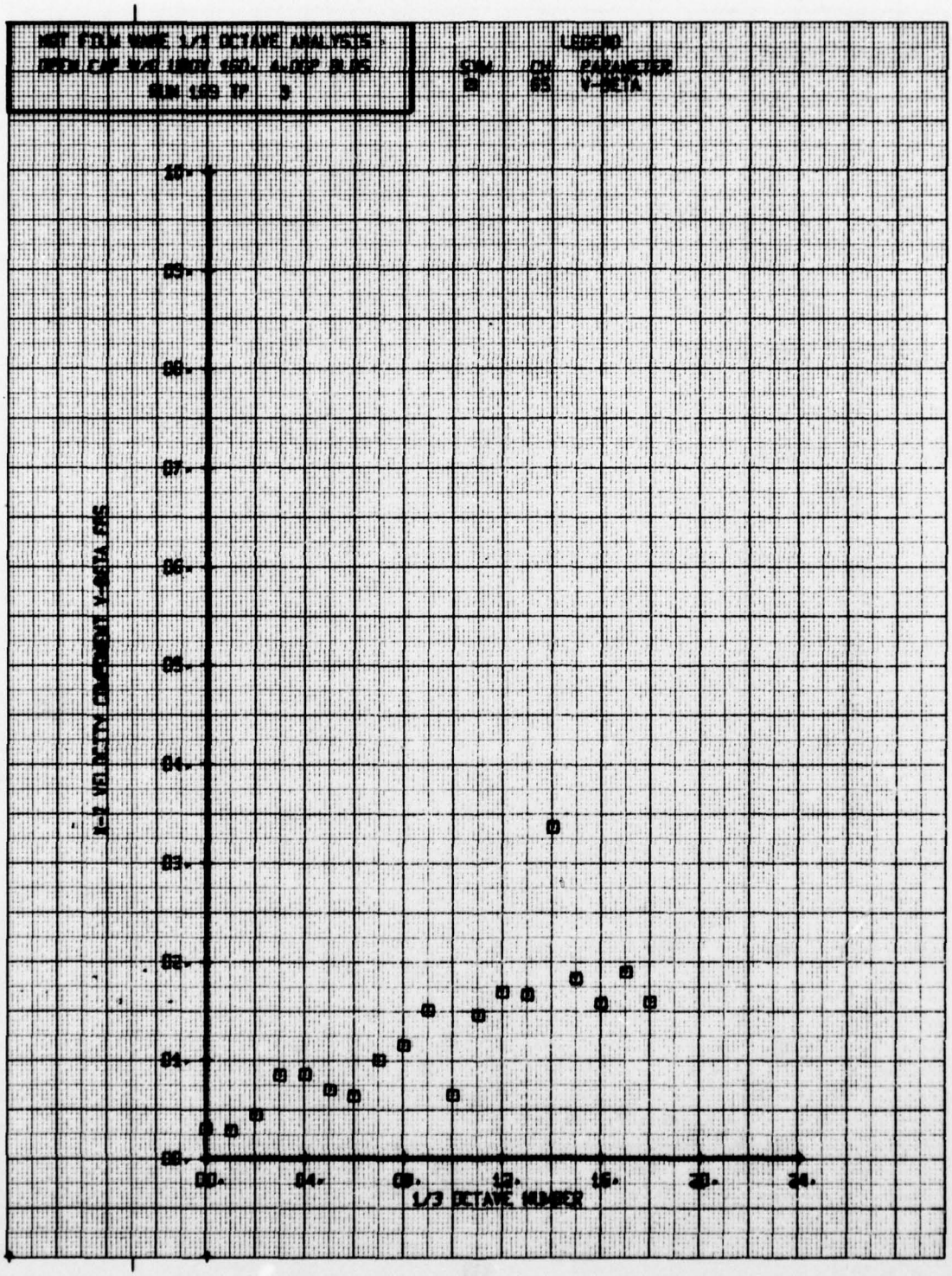

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O BODY 160. 4-DEP BLDS
RUN 169 TP 4
LEGEND
SYM CH PARAMETER
66 V-ALPHA
10.
05.
00.
95.
90.
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80.
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65.
60.
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00.
1/3 OCTAVE BANDS

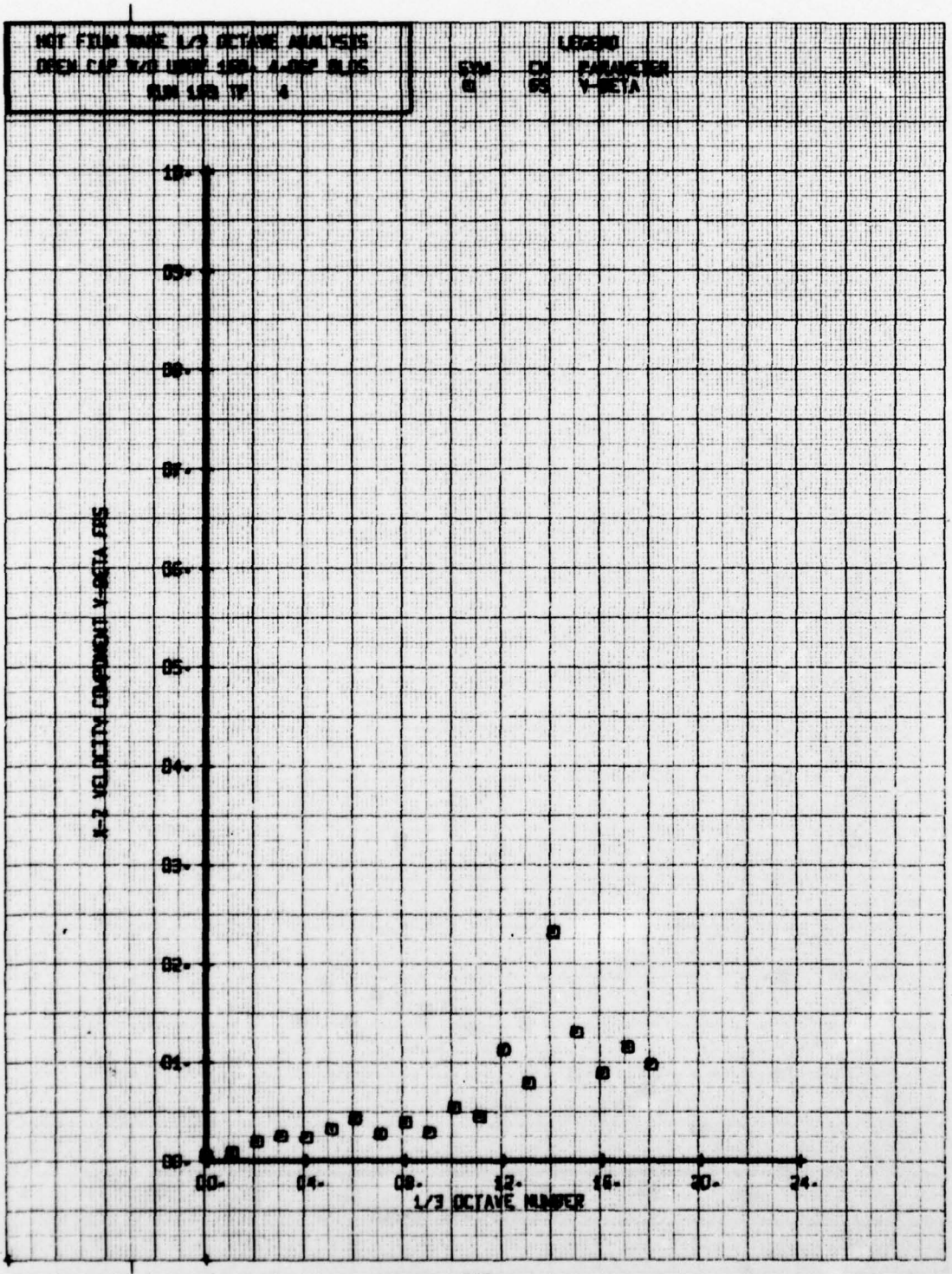

WET FILM WAKE 1/3 OCTAVE ANALYSIS
WITH CAP W/O UNDY 160. 4.0SP BLMS
RUN 165 TP 5
LEGEND
SIM CH PARAMETER
00 05 V-ALPHA
10.
09.
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K-V VELOCITY COMPONENT V-ALPHA RMS
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04.
08.
12.
16.
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24.
1/3 OCTAVE NUMBER

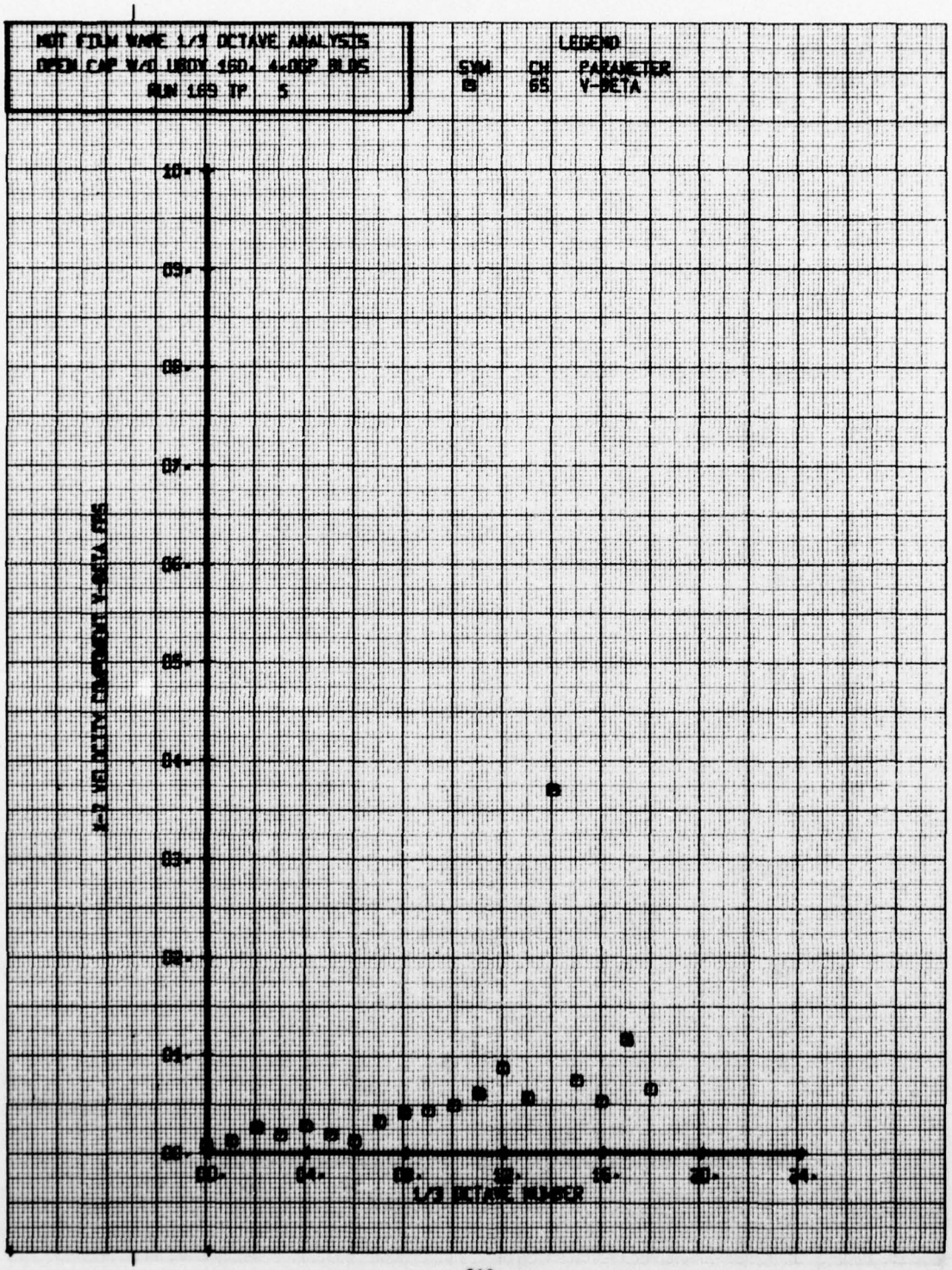

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O LIDDY 15D. 4-DEP BLDS
RUN 183 TP 6
LEGEND
SYM CH PARAMETER
Y-ALPHA
1.0
.9
.8
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.6
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.04
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.12
.16
.20
.24
1/3 OCTAVE NUMBER
X-Y VELOCITY COMPONENT Y-ALPHA RMS

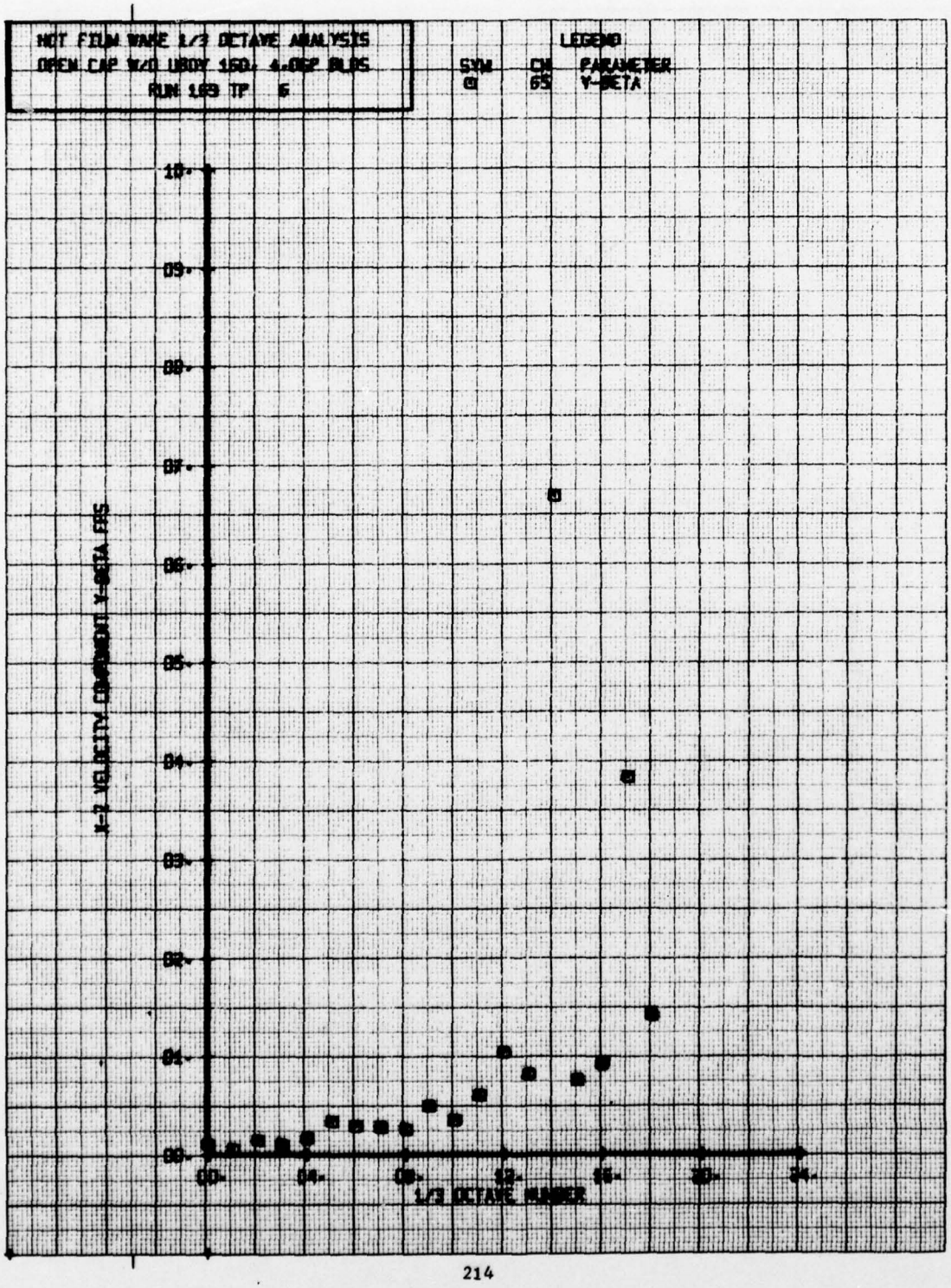

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O LEDGE 180- 4-DEP SLOS
RUN 183 TP 7
LEGEND
SYM CH PARAMETER
01 66 V-ALPHA

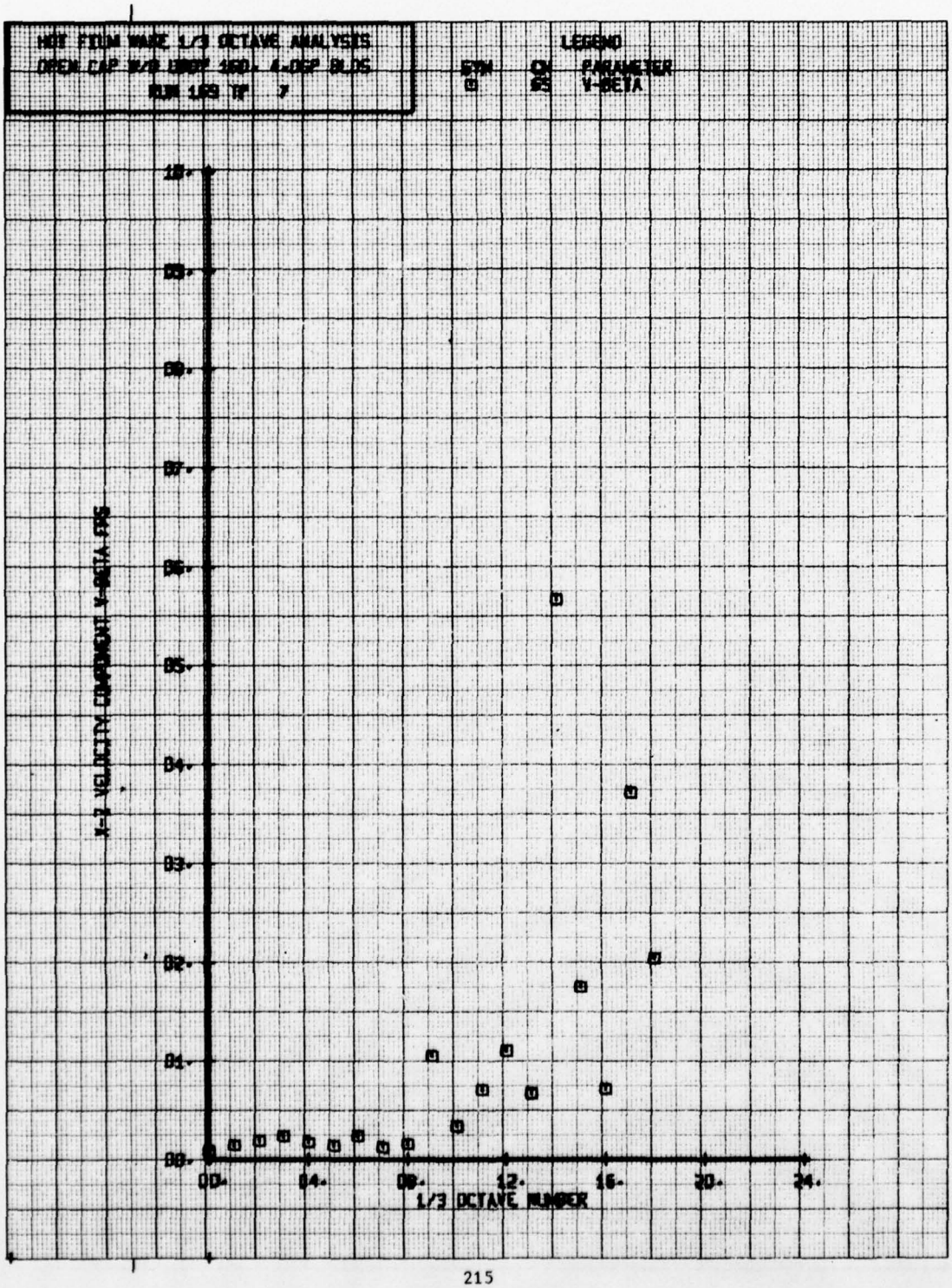

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UNDY 560. 4.DEG BLDS
RUN 169 TP 8
LEGEND
SYM CH PARAMETER
0 66 V-ALPHA
10.
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24.
1/3 OCTAVE NUMBER

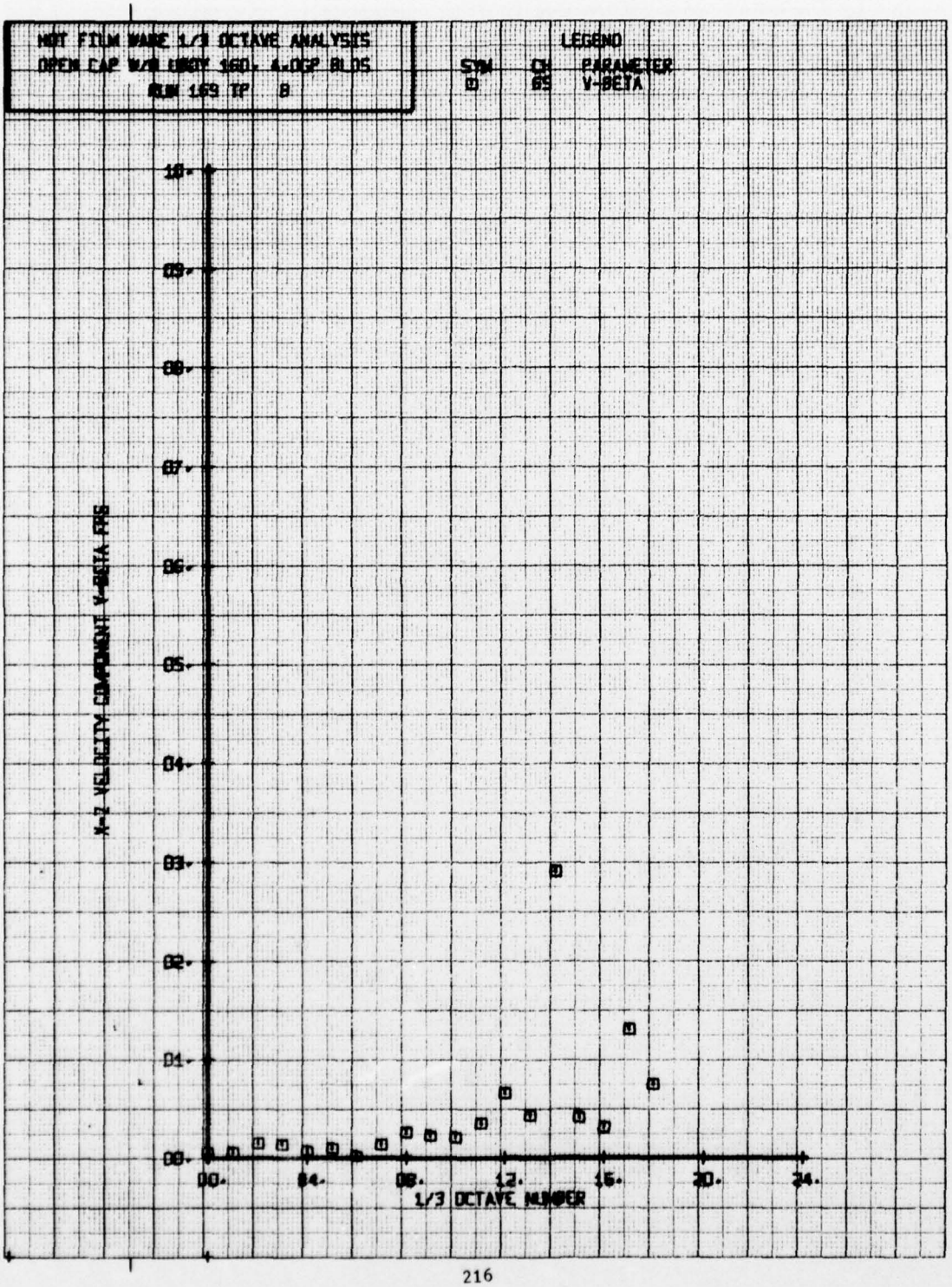

HOT FILM WAKE 1/3 OCTAVE ANALYSIS -
RUN 169 TP 3
LEGEND
SYM CH PARAMETER
85 V-BETA
85.
84.
83.
82.
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24.
1/3 OCTAVE NUMBER

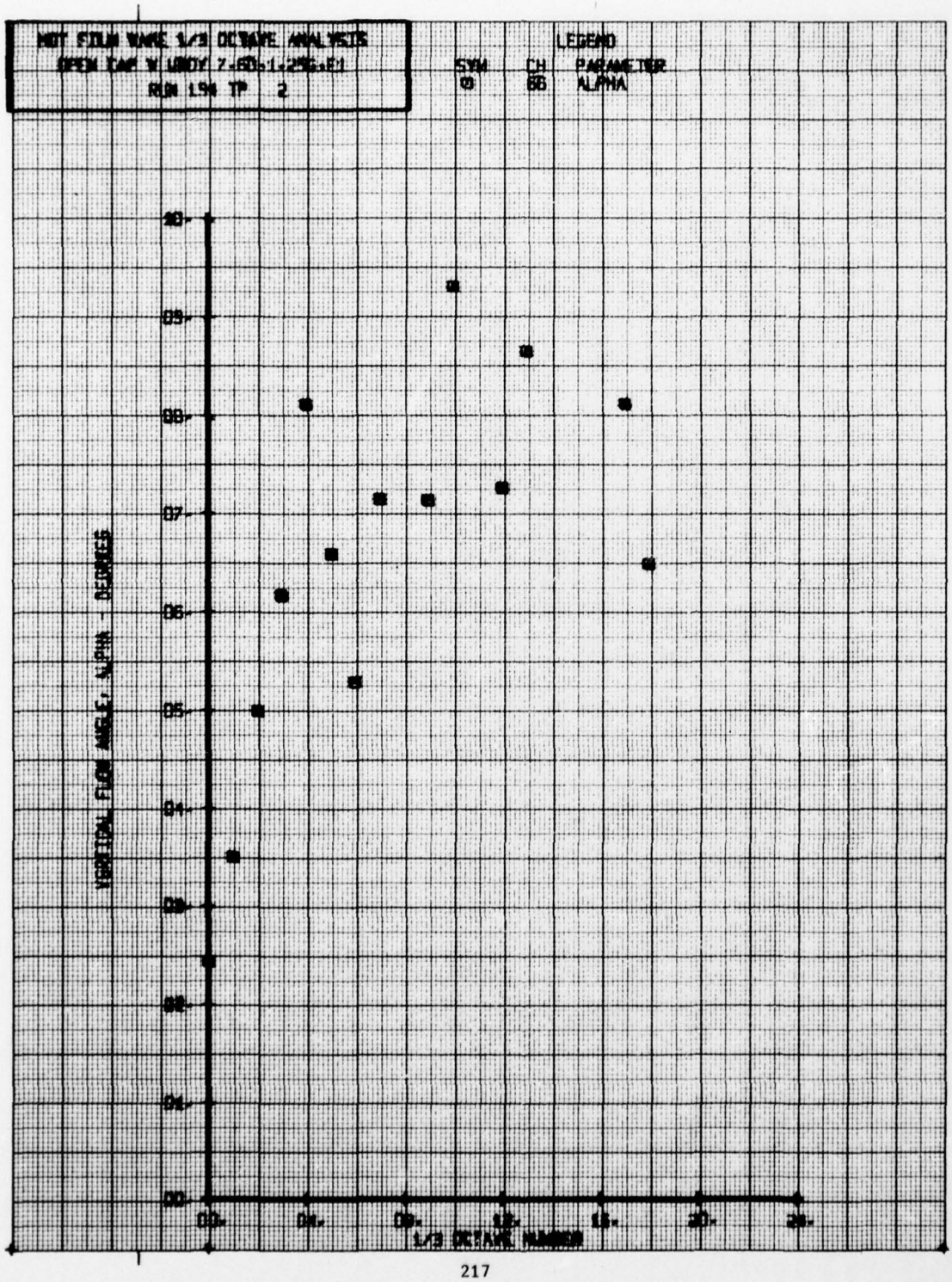

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP 7x10 UPPER 100% A-DEF BLDS
RUN 100 TP 6
LEGEND
SYM
CH PARAMETER
U-BETA
V-BETA
1.0
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24.
1/3 OCTAVE NUMBER

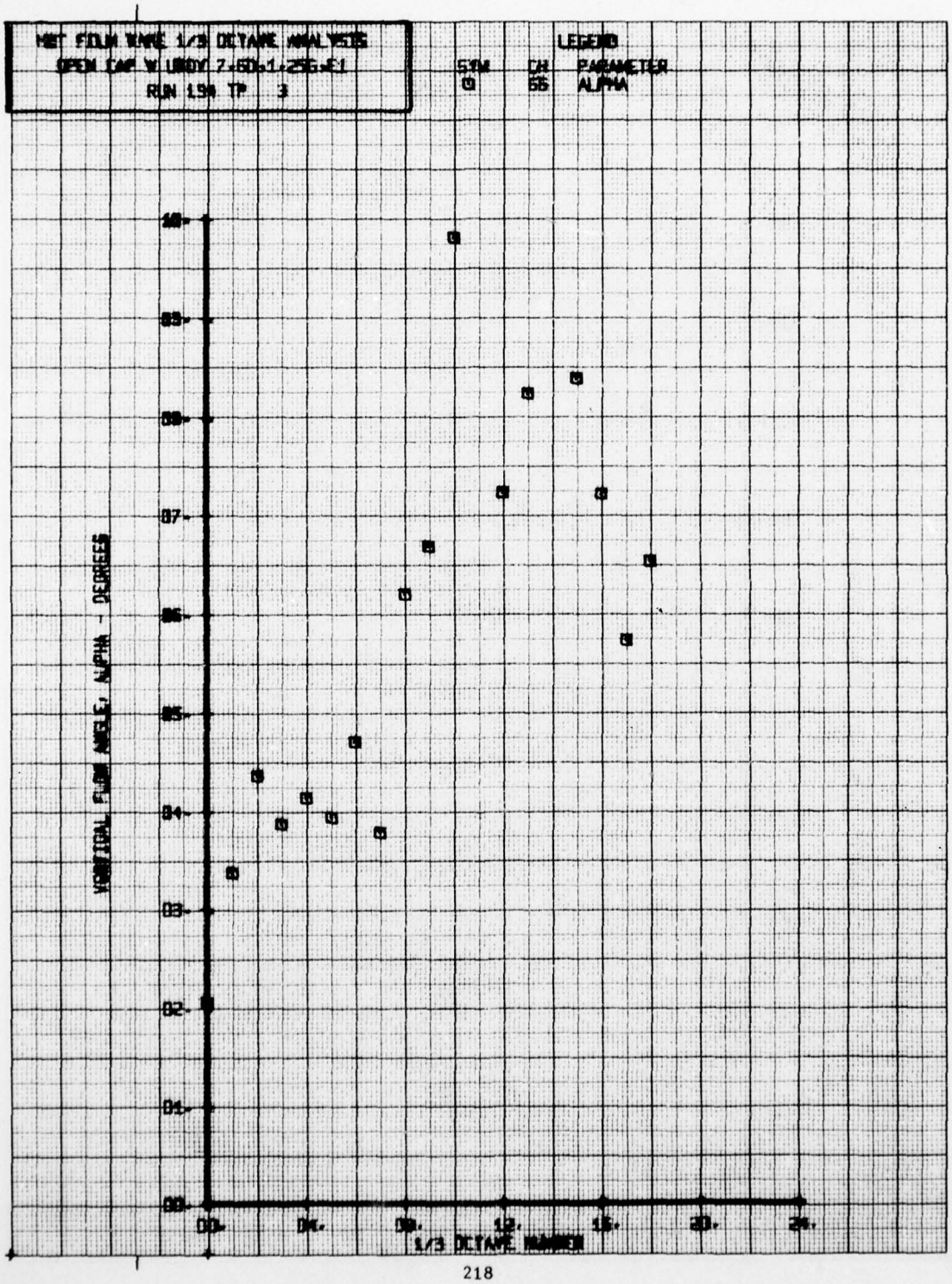

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBOY 160/ 4.0DP BLDS
RUN 169 TP 5
LEGEND
SYM CH PARAMETER
65 V-BETA
10.
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1/3 OCTAVE NUMBER

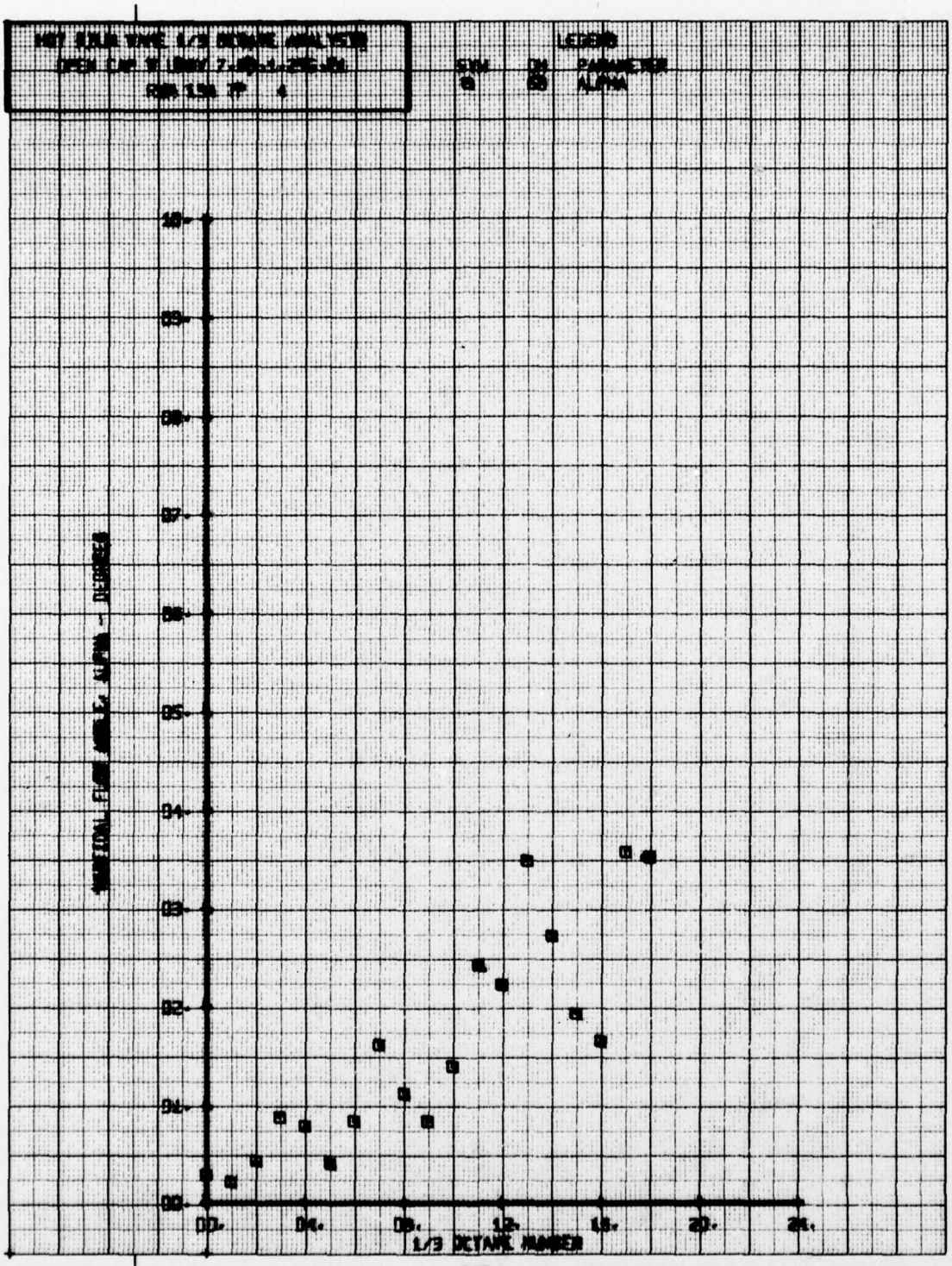

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UBODY 150. 4.062 BLDS
RUN 183 TP 6
LEGEND
SYM CH PARAMETER
65 Y-BETA
10.
09.
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24.
1/3 OCTAVE NUMBER

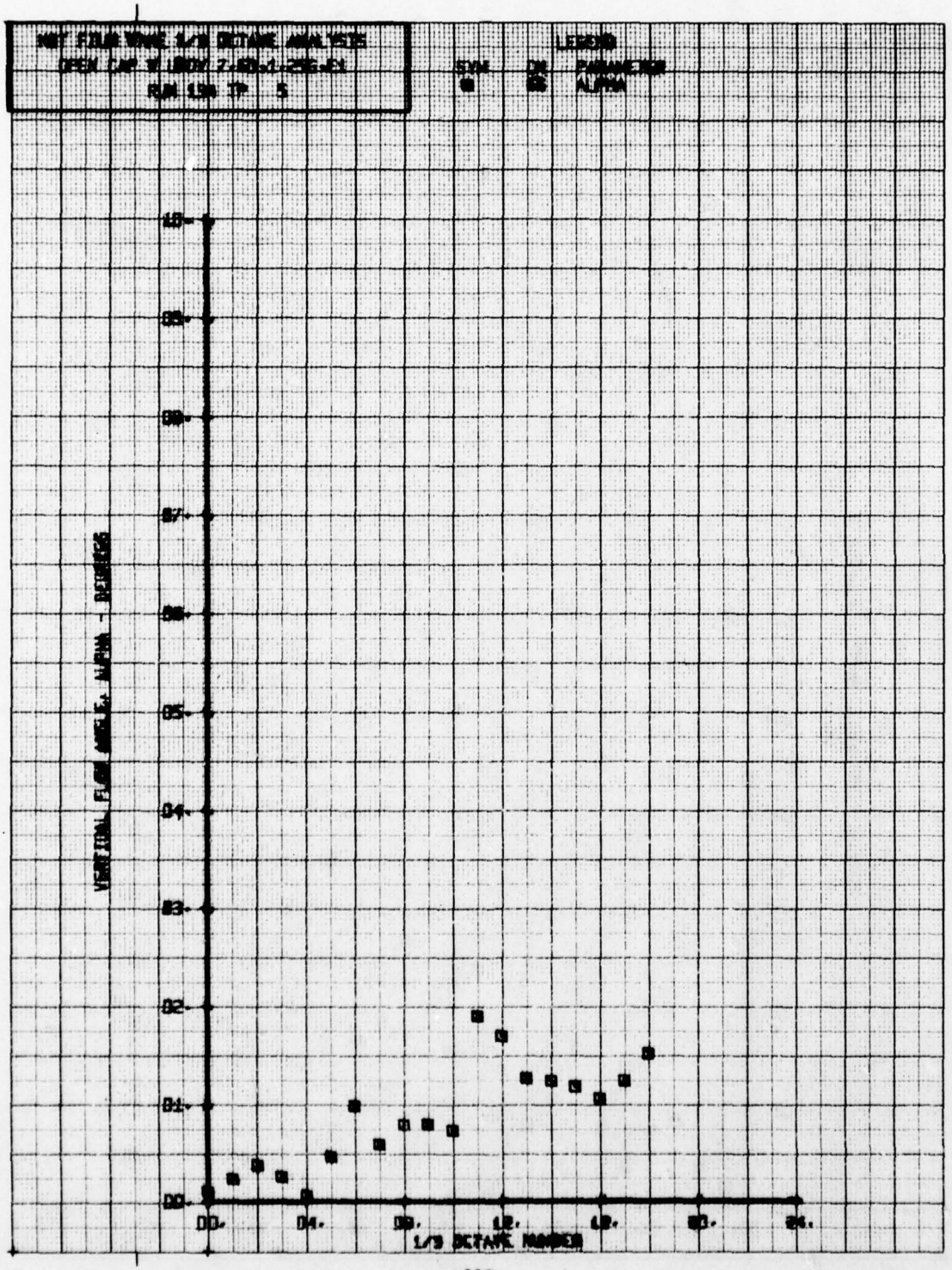

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/O UNDF 180. 4-DEP BLDS
RUN 169 TF 7
LEGEND
SYM CH PARAMETER
SS V-BETA
.10
.09
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X-3 VELOCITY COMPONENT V-BETA RMS
00.
04.
08.
12.
16.
20.
24.
1/3 OCTAVE NUMBER

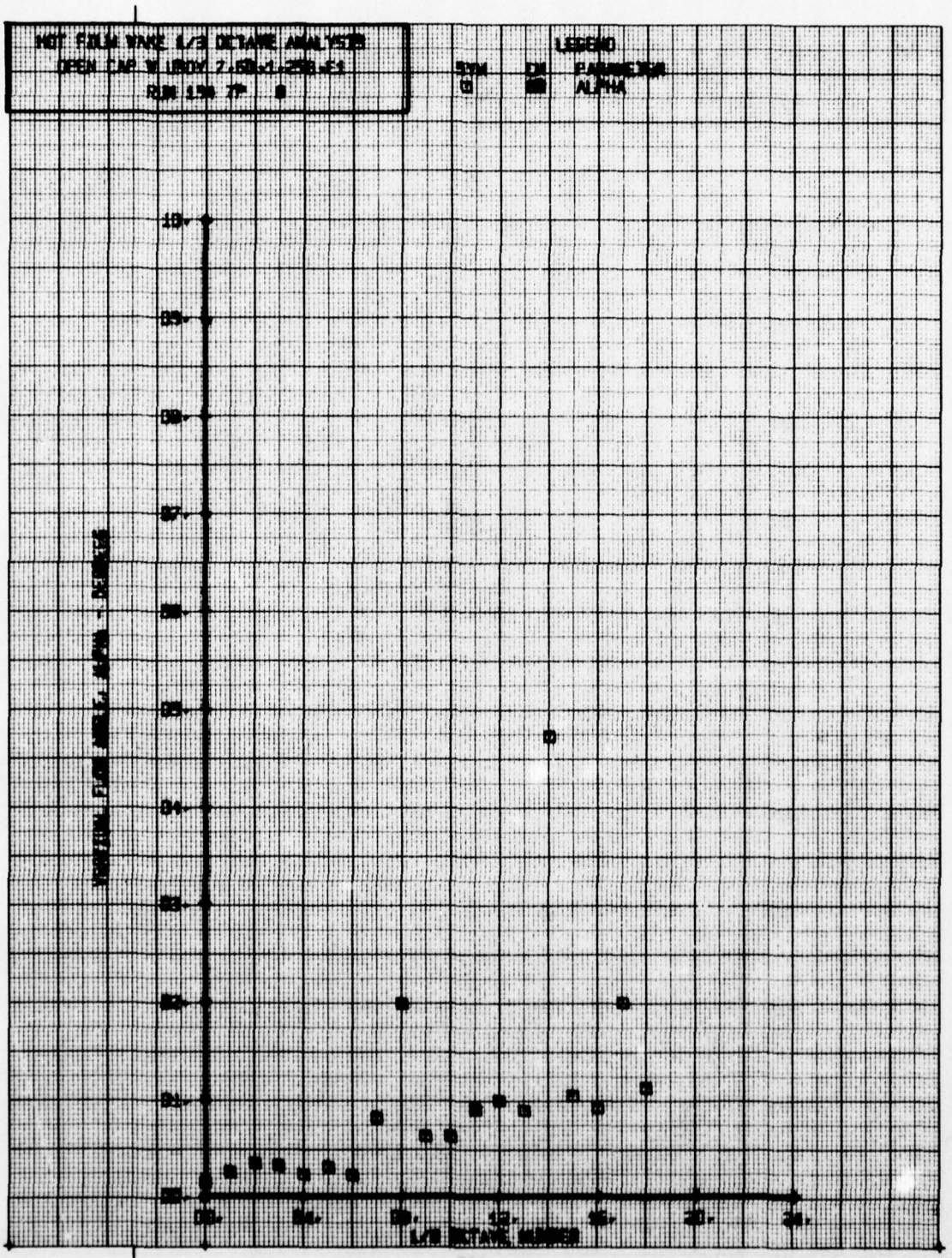

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W/R UBDY 160. 4.0GP BLDS
RUN 169 TP 8
LEGEND
SYM CH PARAMETER
65 V-BETA
10.
09.
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X-Z VELOCITY COMPONENT V-BETA FRS
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24.
1/3 OCTAVE NUMBER

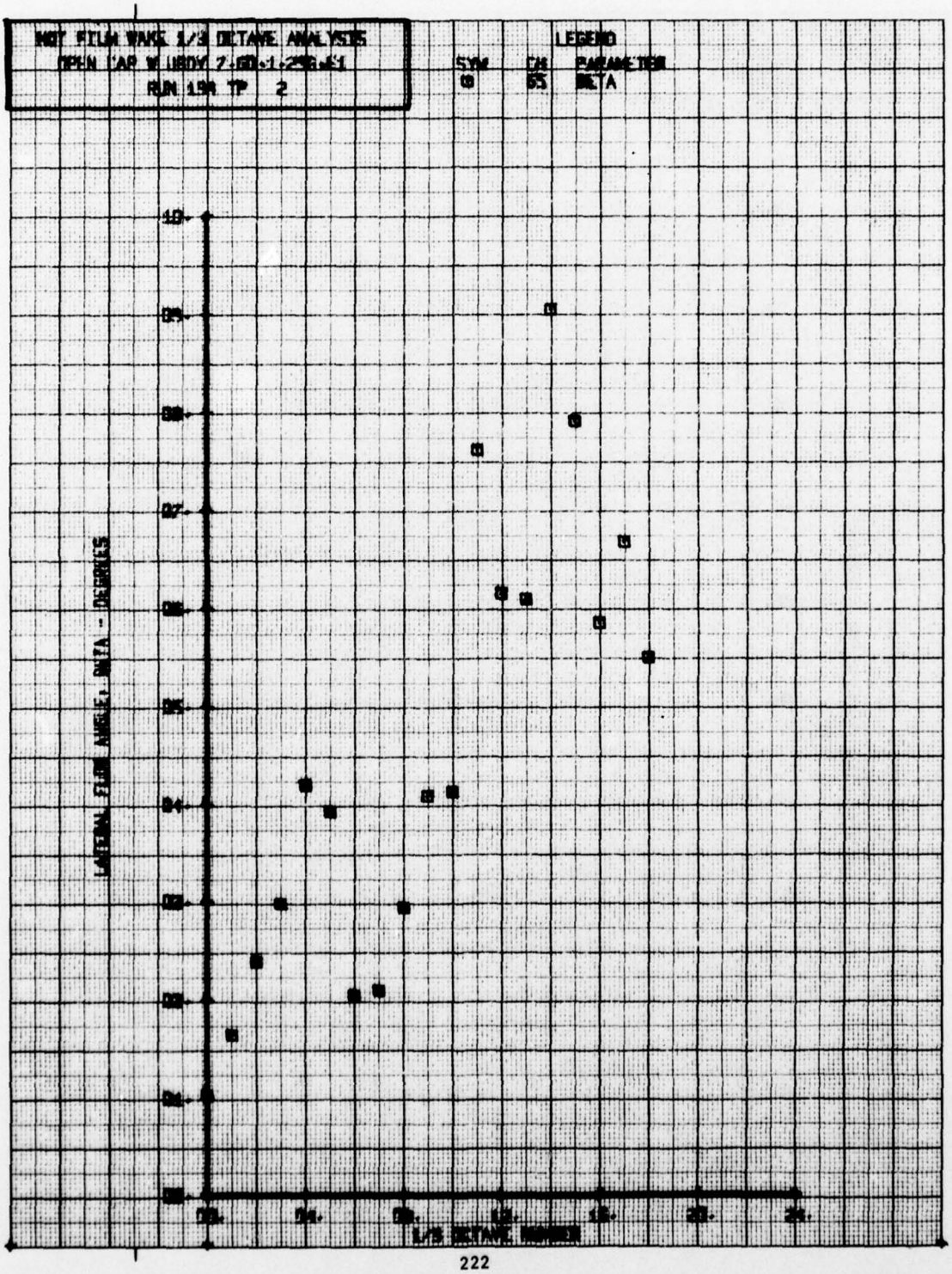

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAV W UBODY 7.5D×1.25D×.21
RUN 154 TP 2
LEGEND
SYM CH PARAMETER
⊙ 66 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

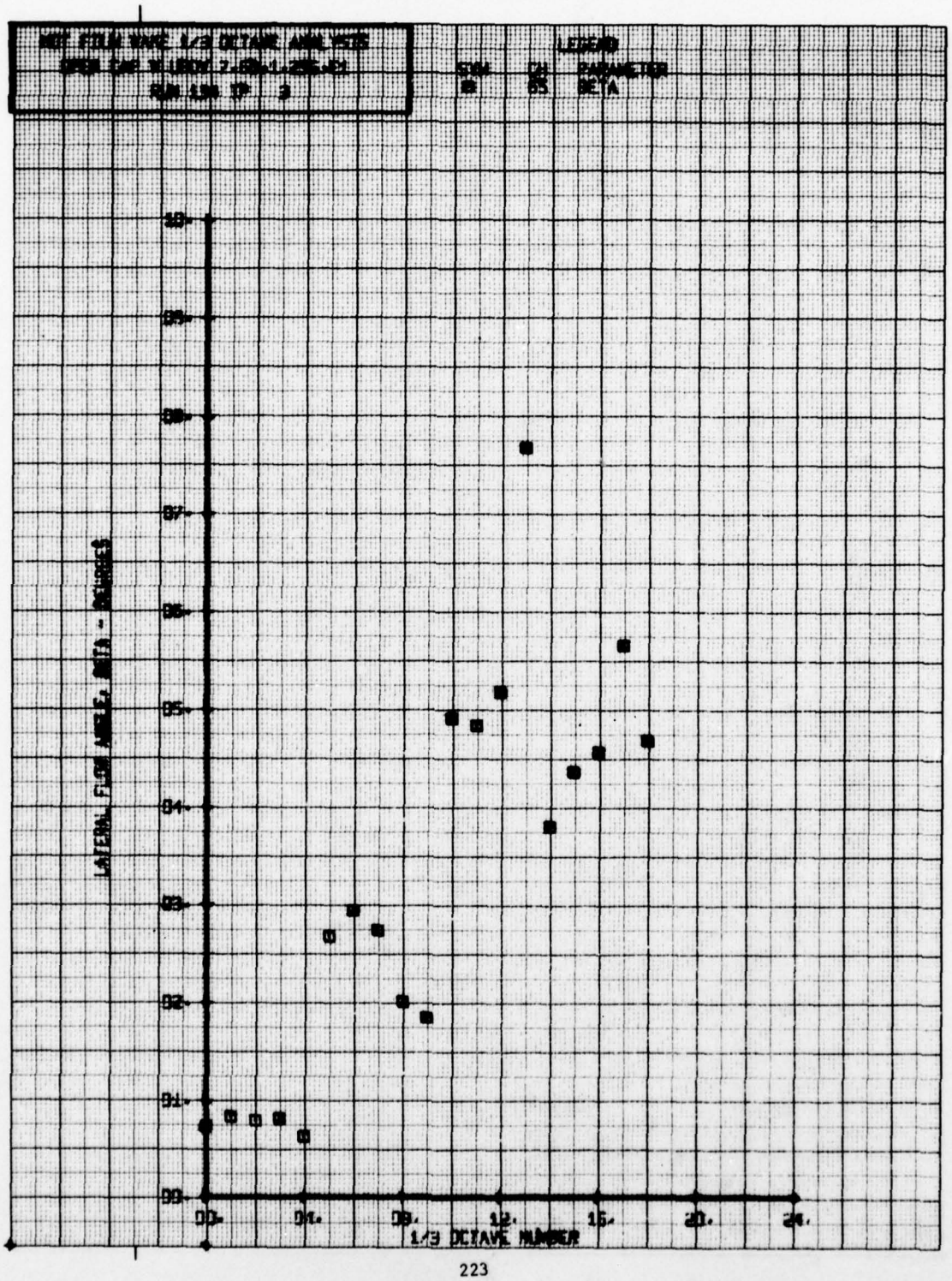

NET FILM WAVE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 7.60.1.25G.E1
RUN 19A TP 3
LEGEND
SYM CH PARAMETER
G 66 ALPHA
HORIZONTAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

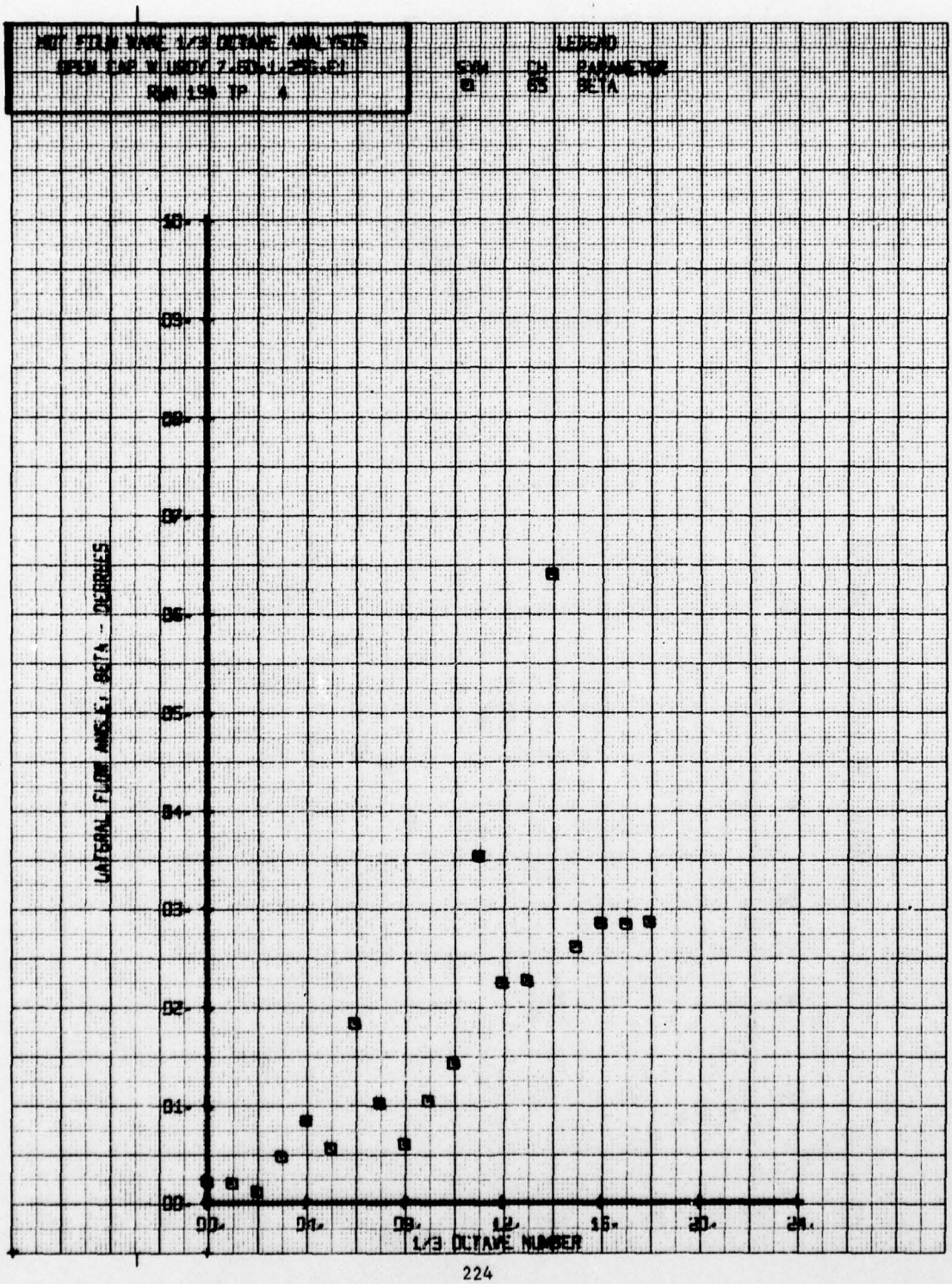

LEGEND
SYM DH PARAMETER
ALPHA
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.0
0.0
0.4
0.8
1.2
1.6
2.0
2.4
1/3 OCTAVE NUMBER

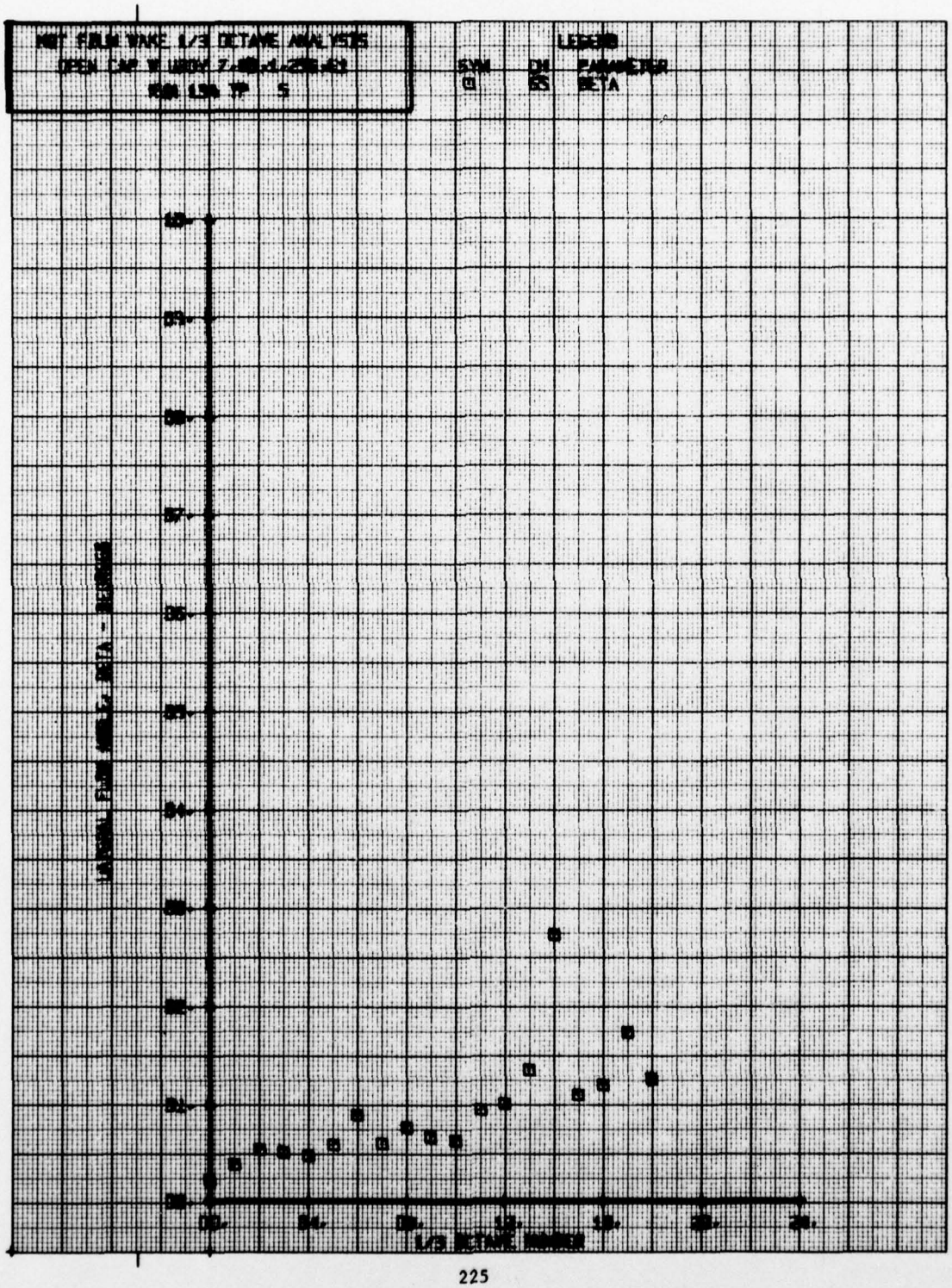

LEGEND
SYM
PARAMETER
ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

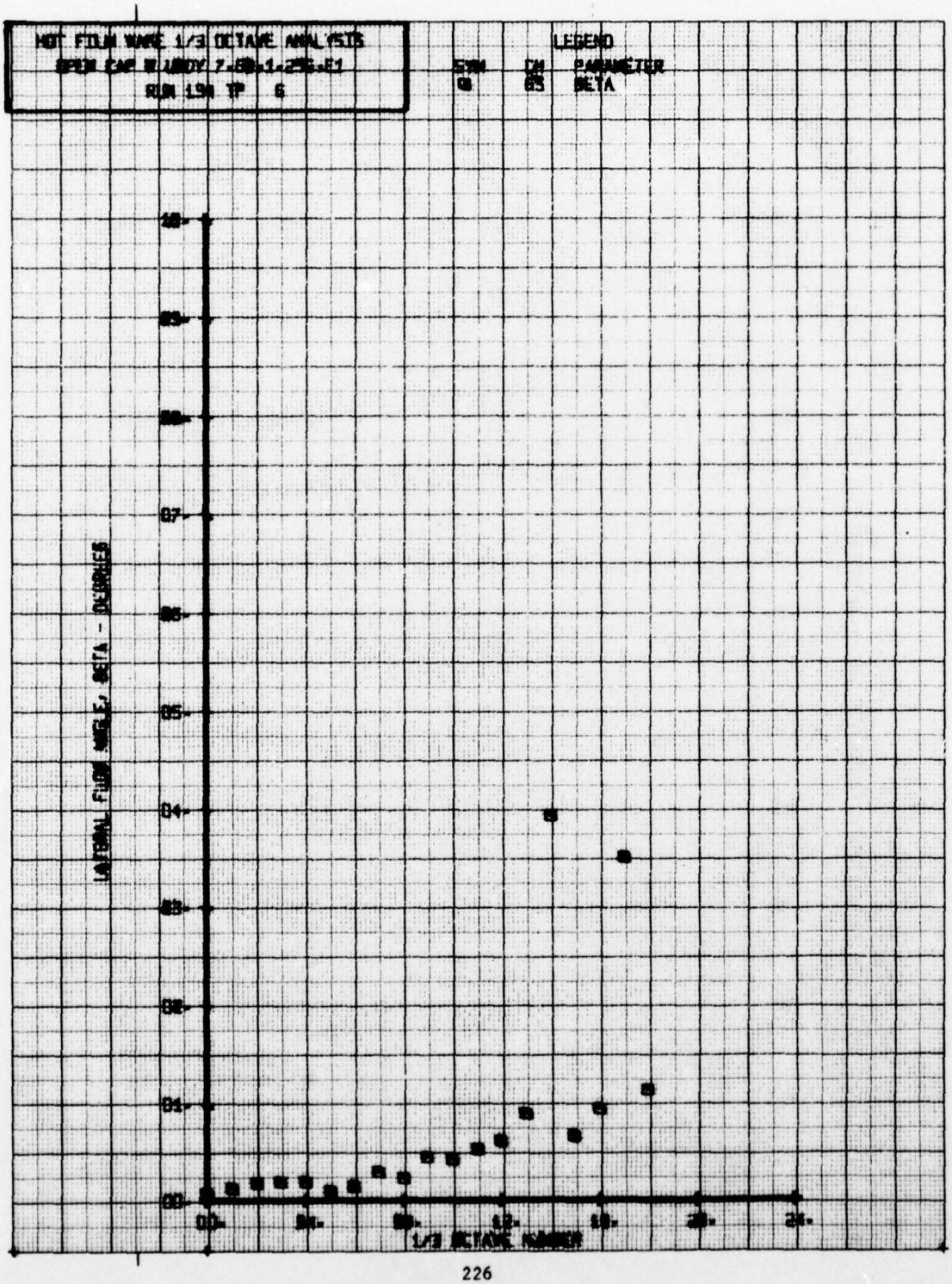

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W IBOW 7.5E+1.25E+1
RUN 158 7P 8
LEGEND
SYM ID PARAMETER
ALPHA
1/3 OCTAVE NUMBER

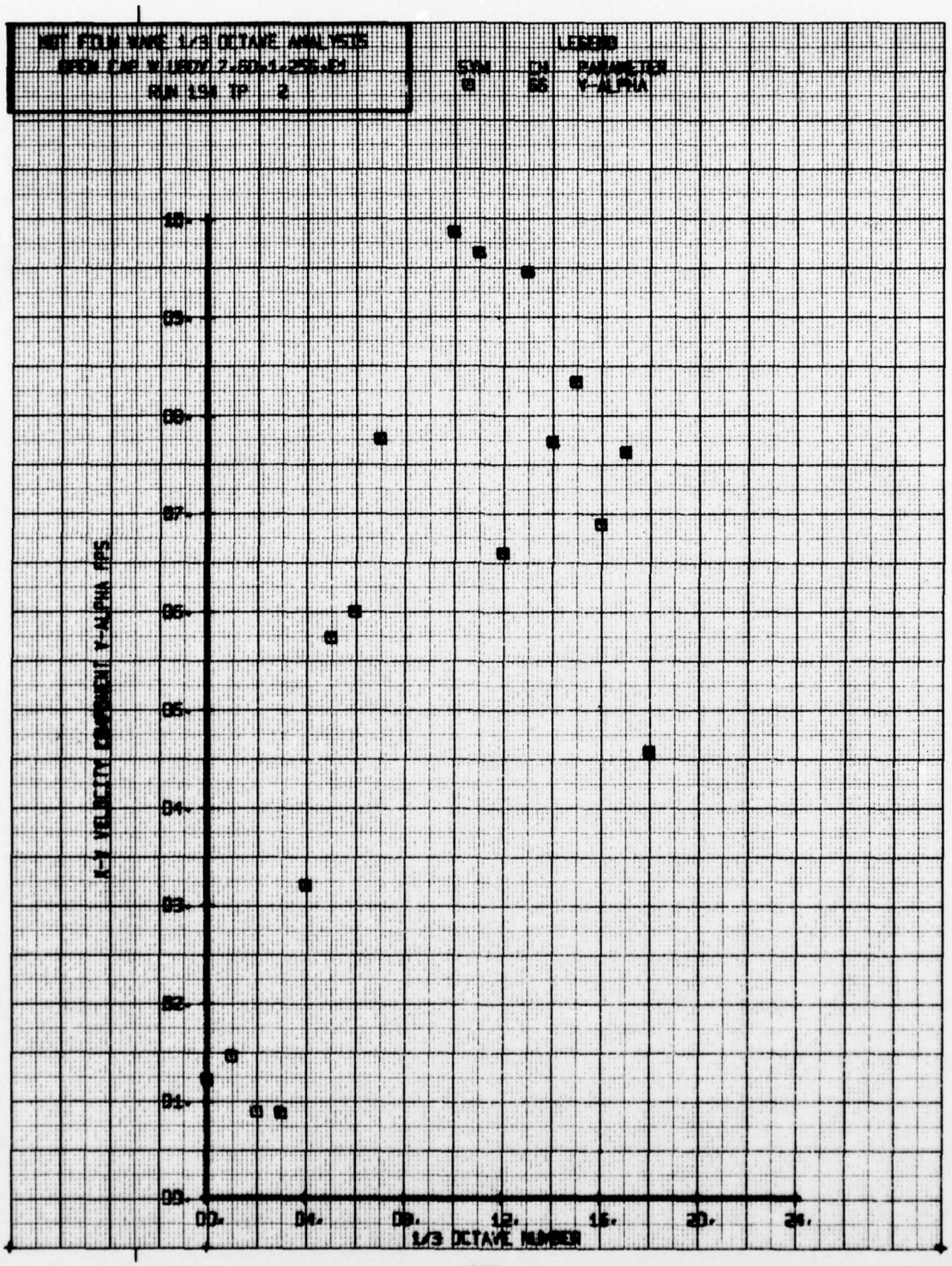

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN TAP W BODY 7-60-1.25R-1
RUN 198 TP 2
LEGEND
SYM CH PARAMETER
55 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER

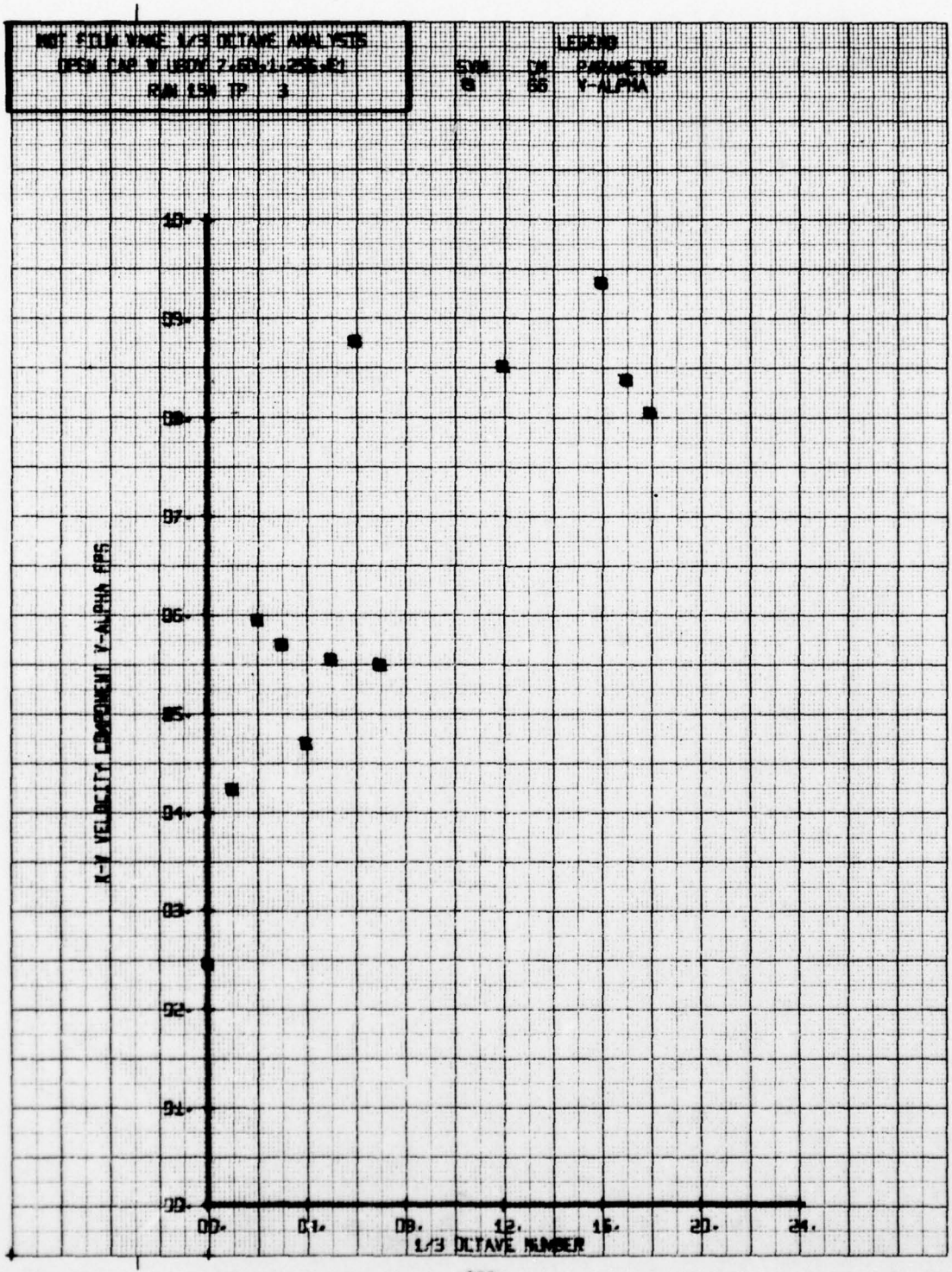

LEGEND
SYM DE PARAMETER
BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER

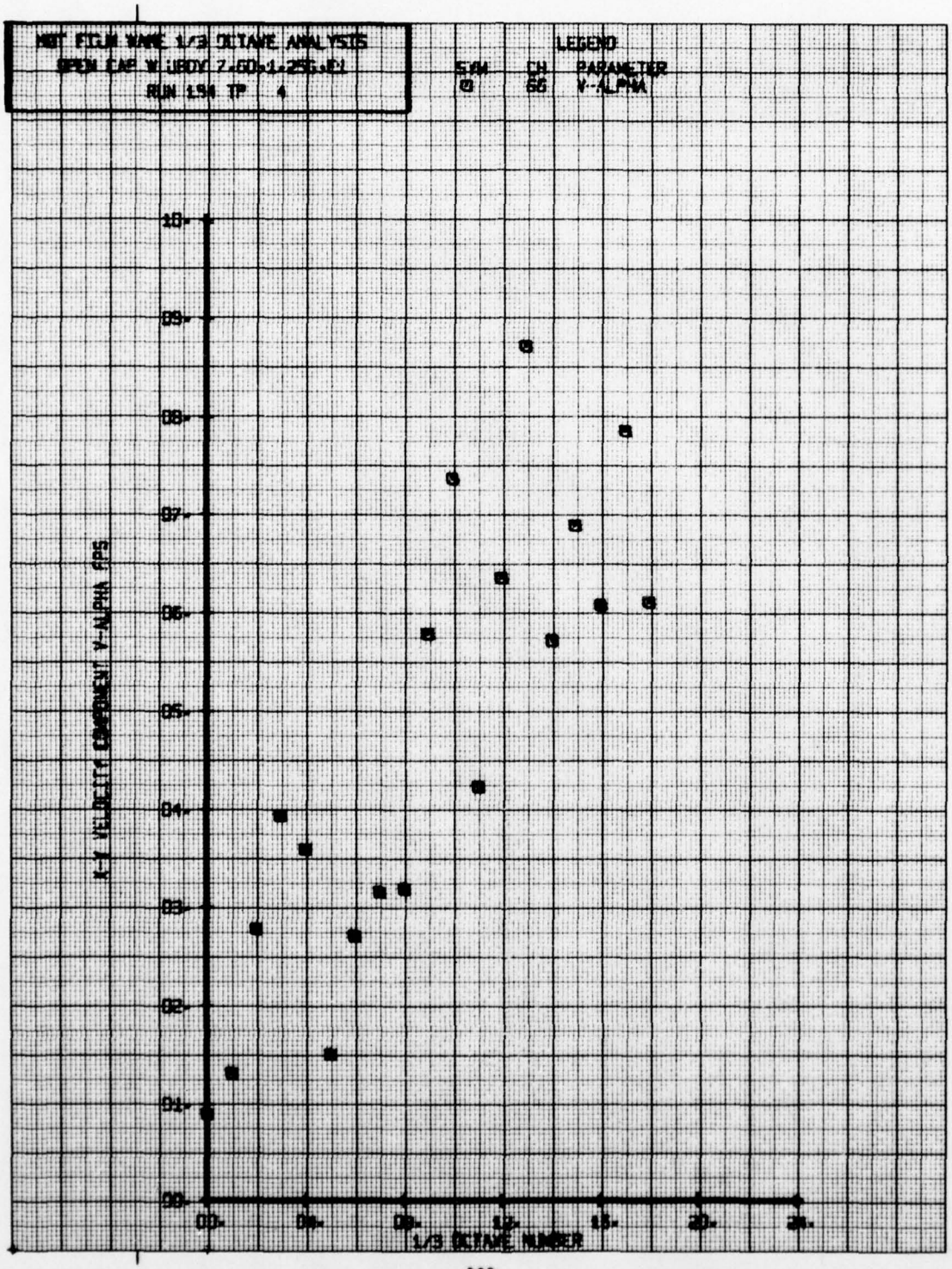

MIT STORM WAVE 1/3 OCTAVE ANALYSIS
OPEN END W USGV 7.FD=1.25E.E1
RUN 190 TP A
LEGEND
SYM CH PARAMETER
65 BETA
10.
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LATERAL FLOW ANGLE, BETA - DEGREES
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1/3 OCTAVE NUMBER

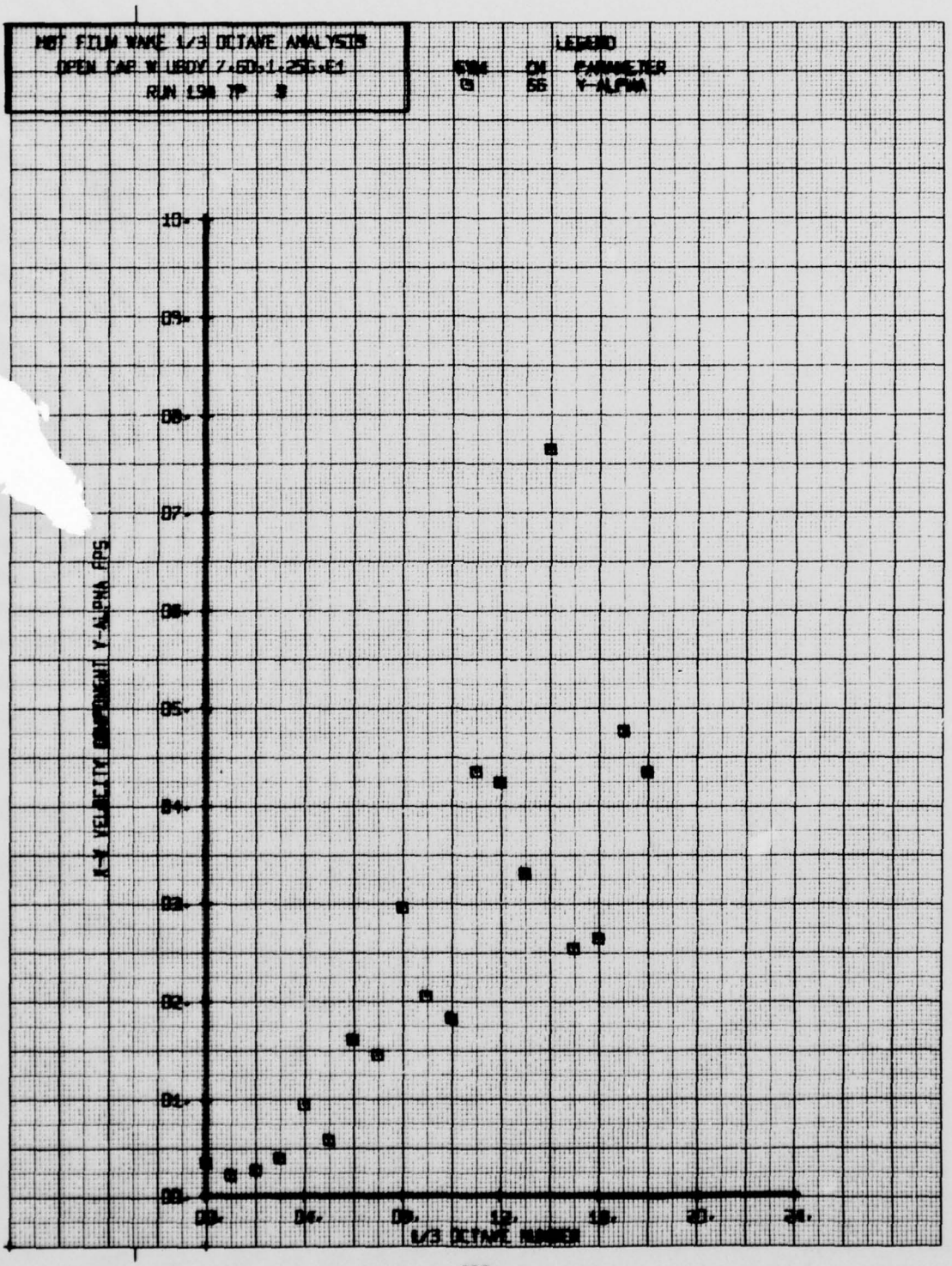

NRT FORUM TAKE 1/3 OCTAVE ANALYSIS
LEGEND
SYM
DX
PARAMETER
BETA

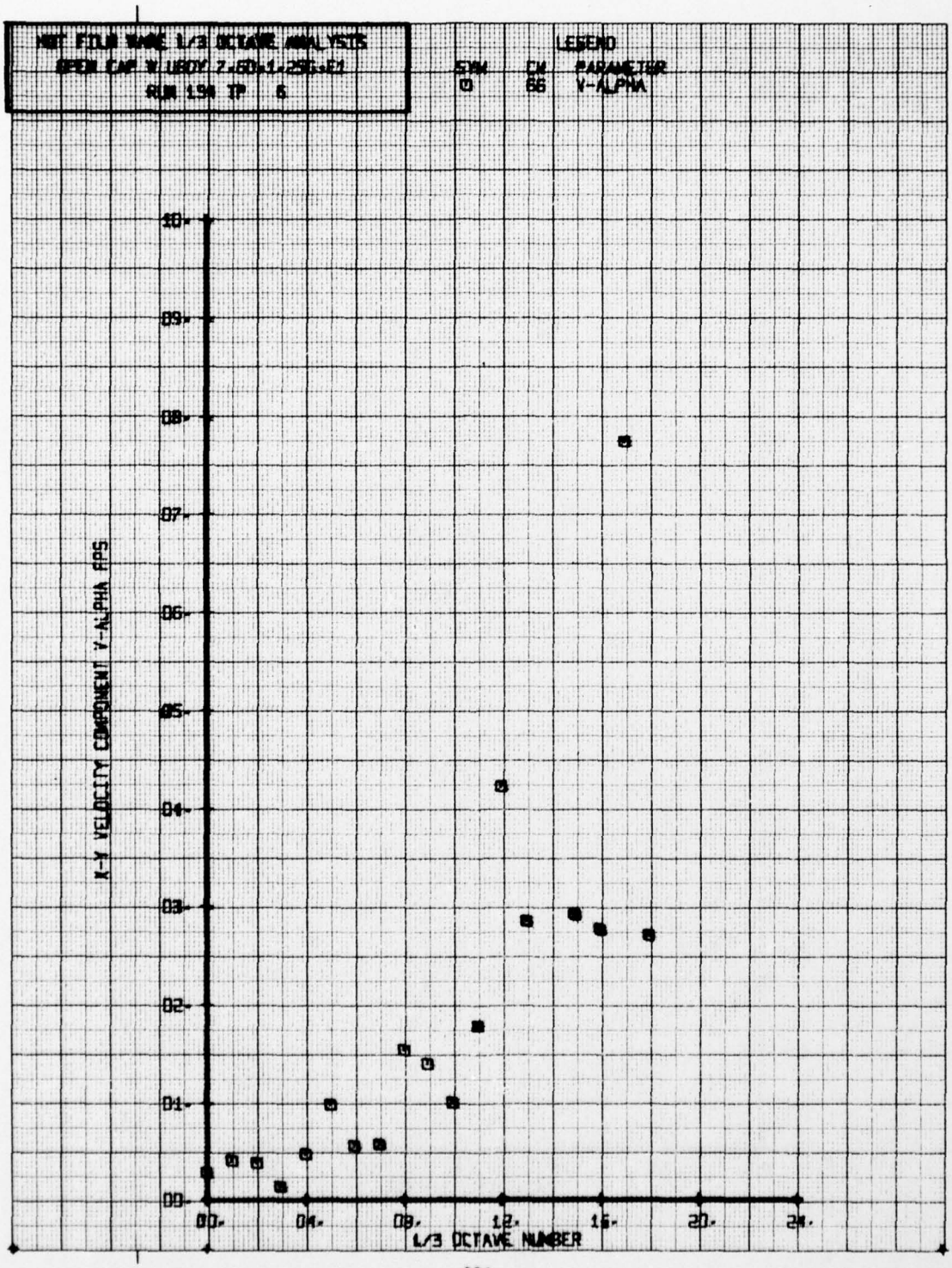

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
RUN 194 TP 6
LEGEND
SYM PM PARAMETER
BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER

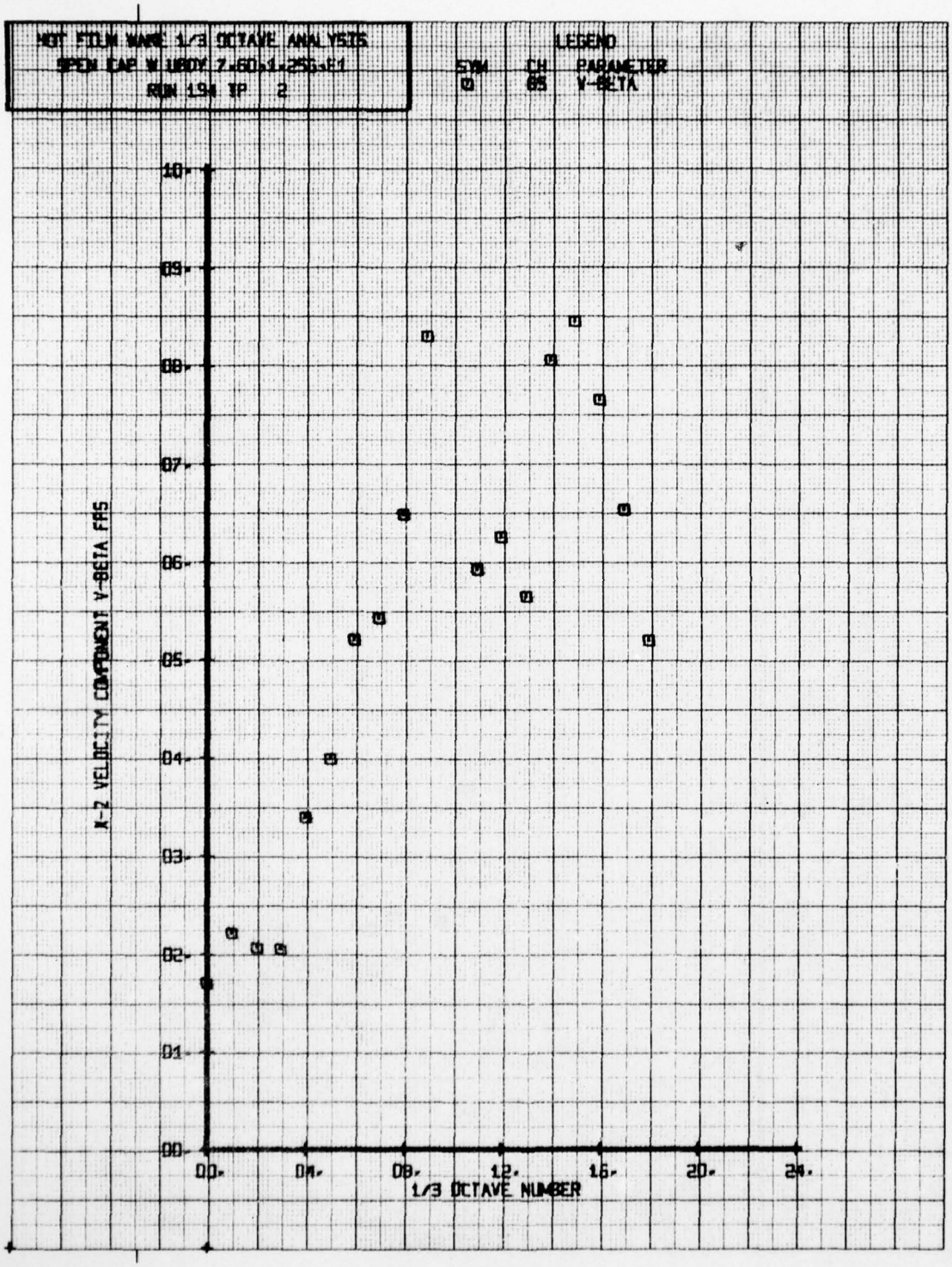

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
RUN 154 TP 2
LEGEND
SYM PARAMETER
Y-ALPHA
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16.
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24.
1/3 OCTAVE NUMBER

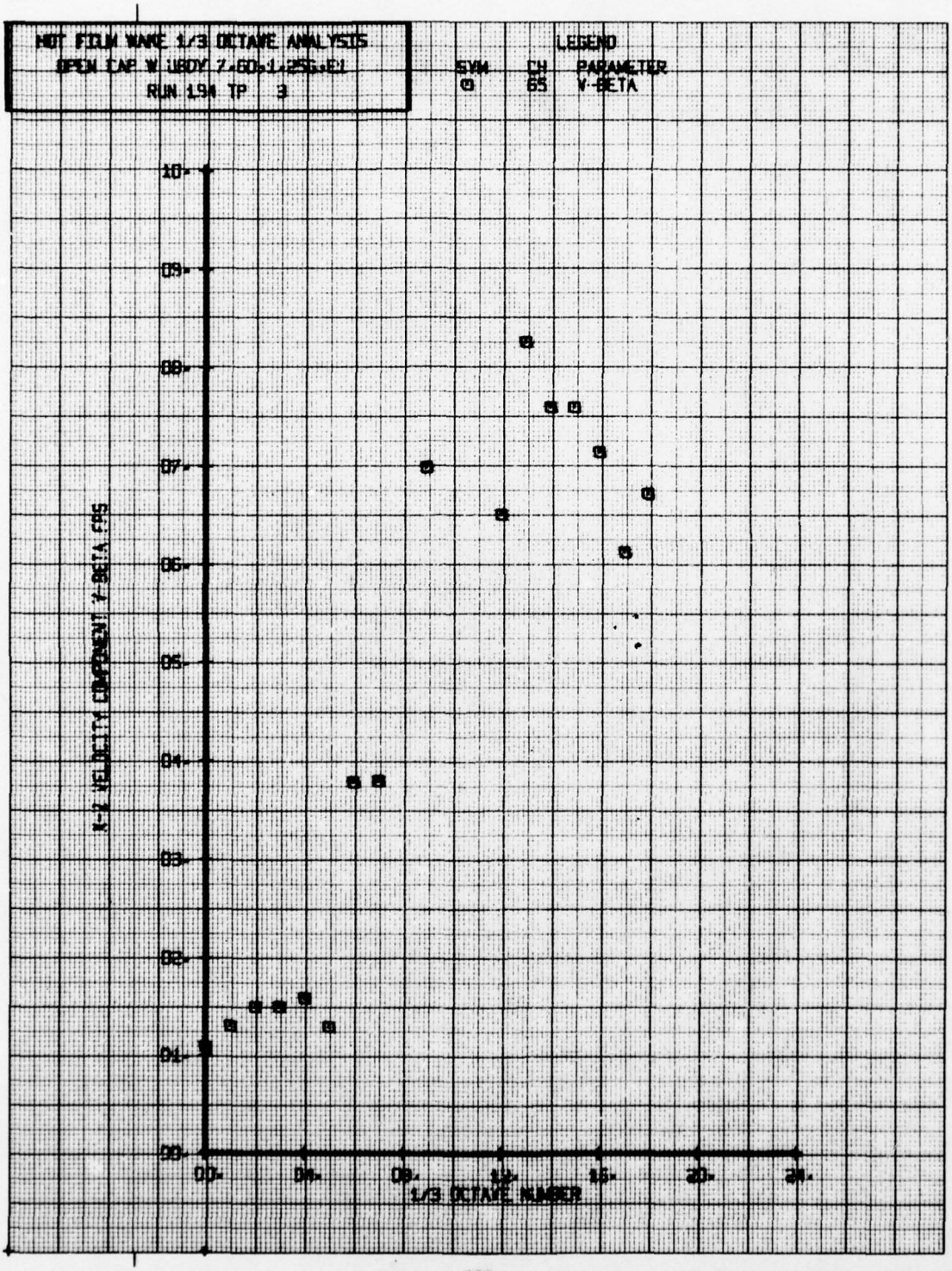

NET FLOW WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOW 7.60+1.25E+01
RUN 150 TP 3
LEGEND
SUB DR PARAMETER
6 66 V-ALPHA
X-V VELOCITY COMPONENT V-ALPHA FPS
1/3 OCTAVE NUMBER

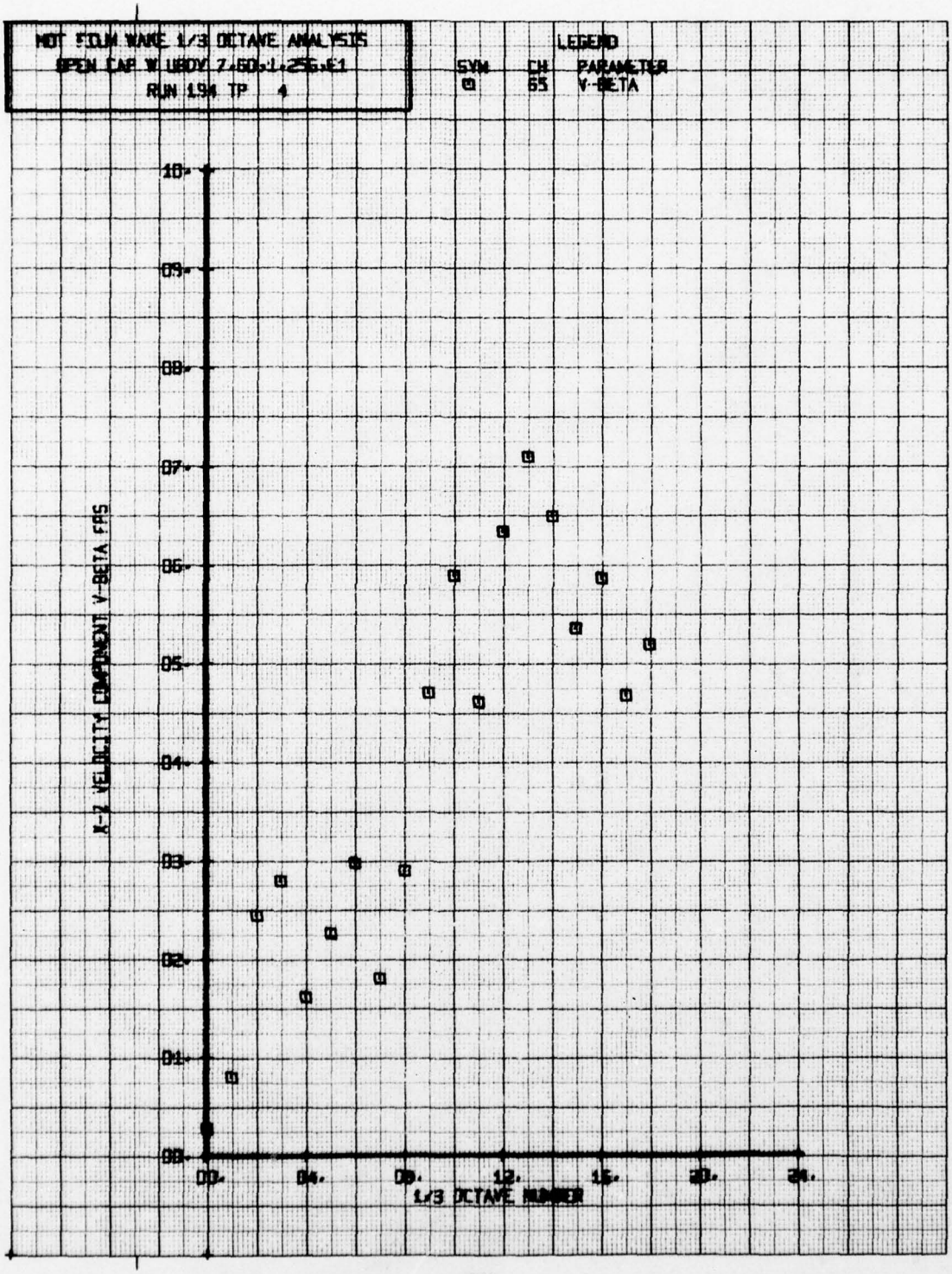

MST FIGM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W.UROV 7.60+1.25G.02
RUN 154 TP 4
LEGEND
SAM CH PARAMETER
@ 66 V-ALPHA
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X-Y VELOCITY COMPONENT V-ALPHA FPS
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25.
1/3 OCTAVE NUMBER

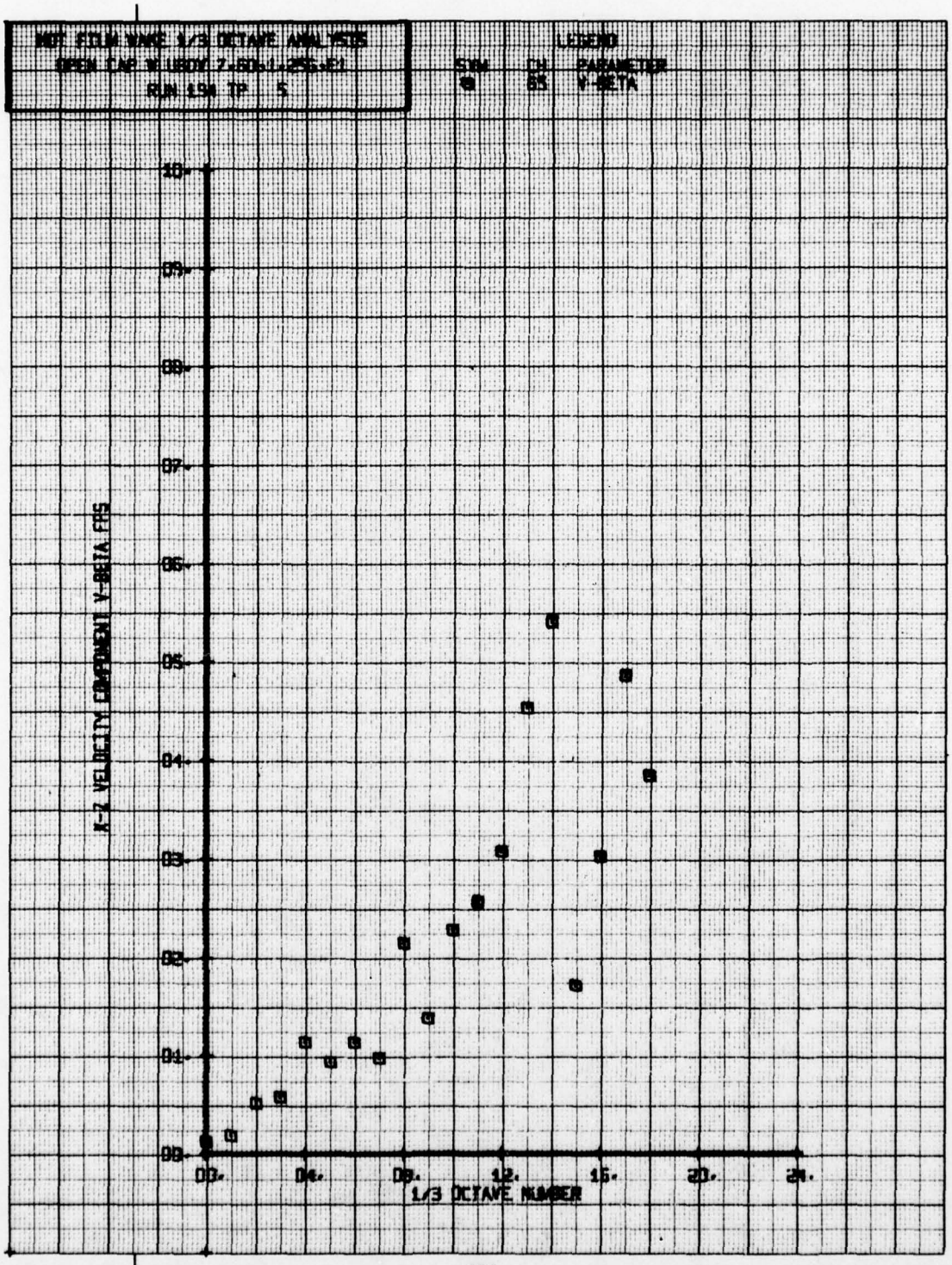

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAB W UBODY 7.60e1.25e1
RUN L9A TP 3
LEGEND
SYM ON PARAMETER
Y-ALPHA
10.
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1/3 OCTAVE NUMBER

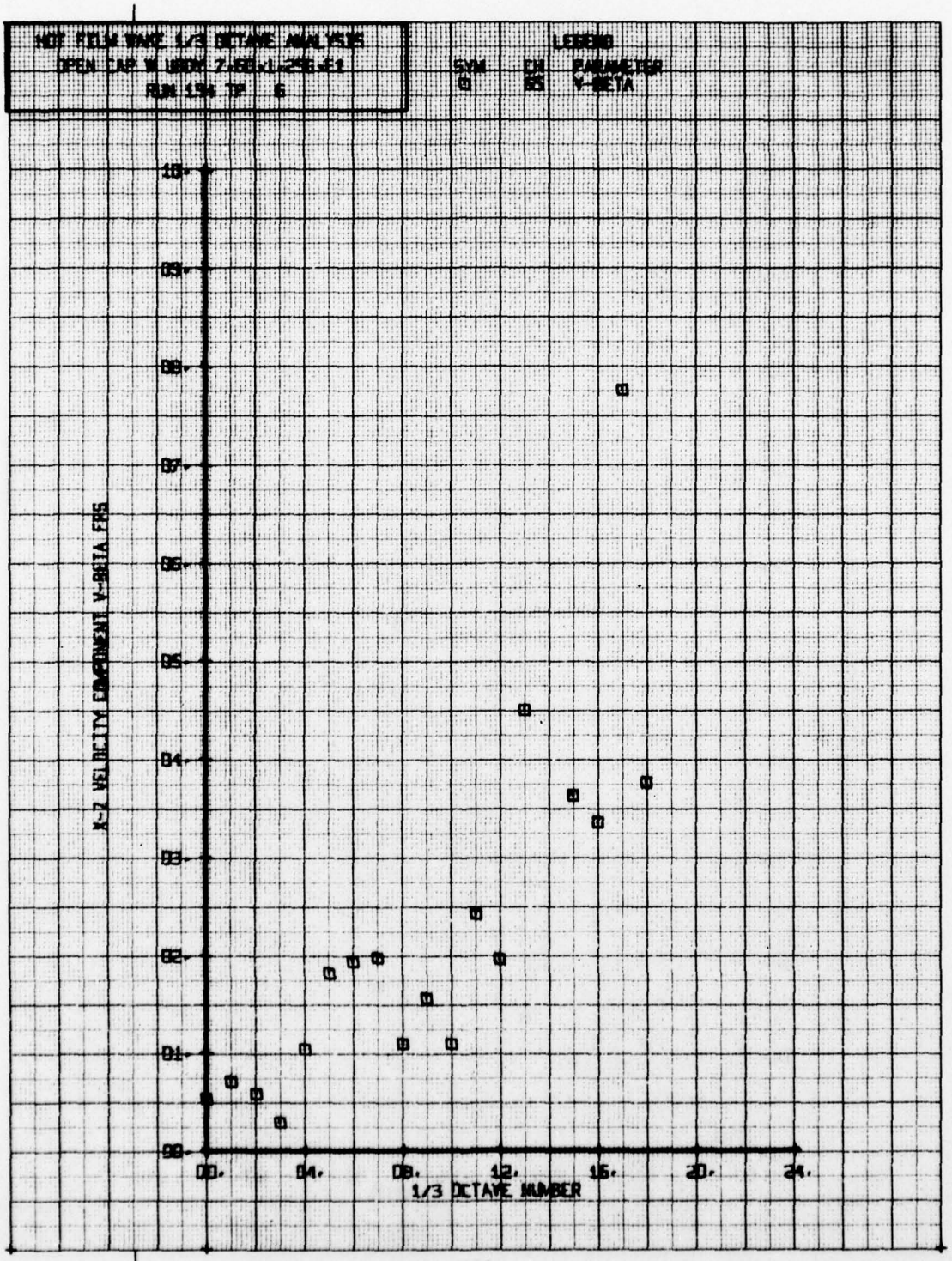

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBDY 7.60x1.25x.21
RUN 154 TP 6
LEGEND
SYM CM PARAMETER
0 86 V-ALPHA
10.
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K-V VELOCITY COMPONENT V-ALPHA RPS
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1/3 OCTAVE NUMBER

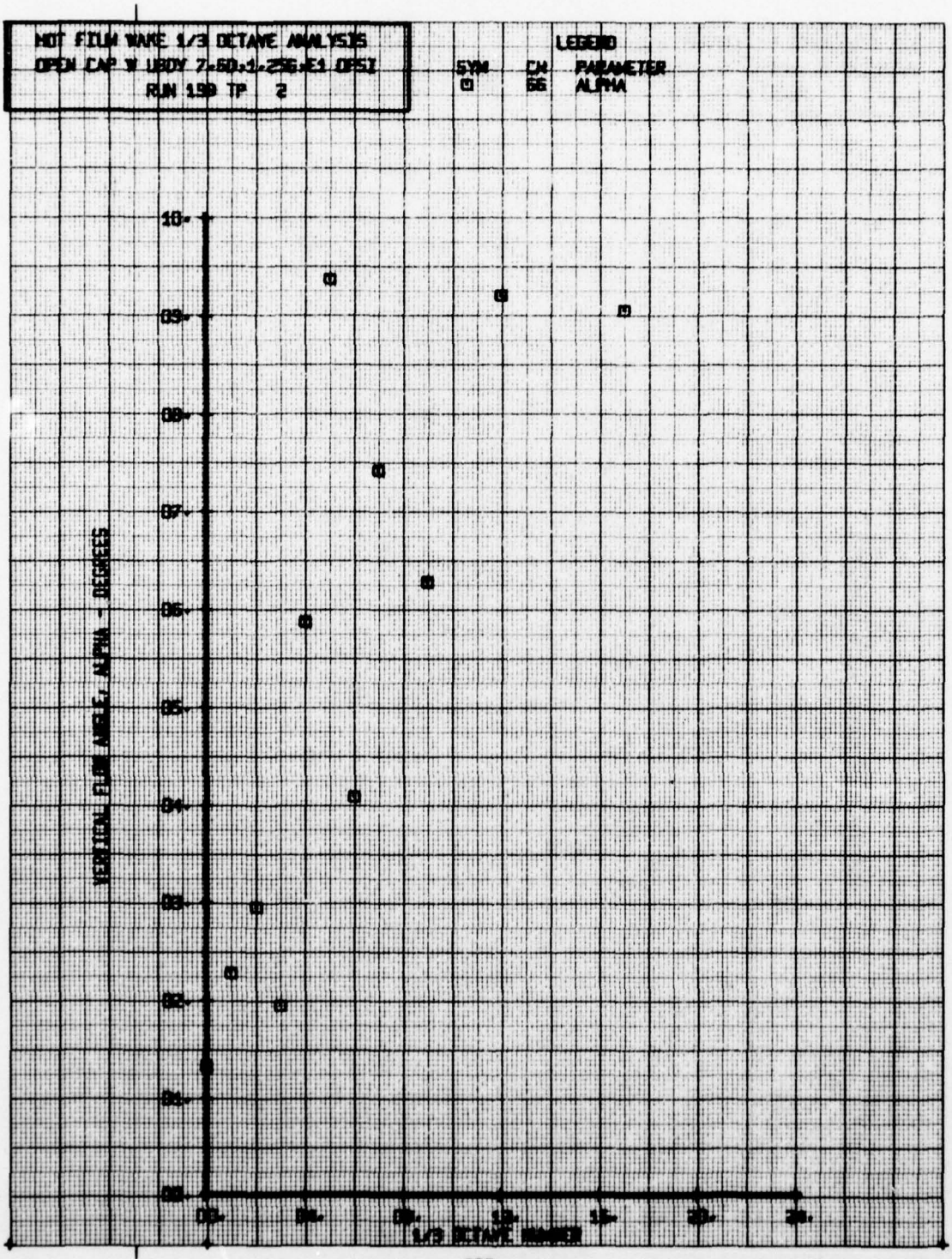

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
SPEN CAP W UBDY 7.60x1.25x.61
RUN 194 TP 2
LEGEND
SYM CH PARAMETER
05 V-BETA
X-2 VELOCITY COMPONENT V-BETA FAS
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1/3 OCTAVE NUMBER

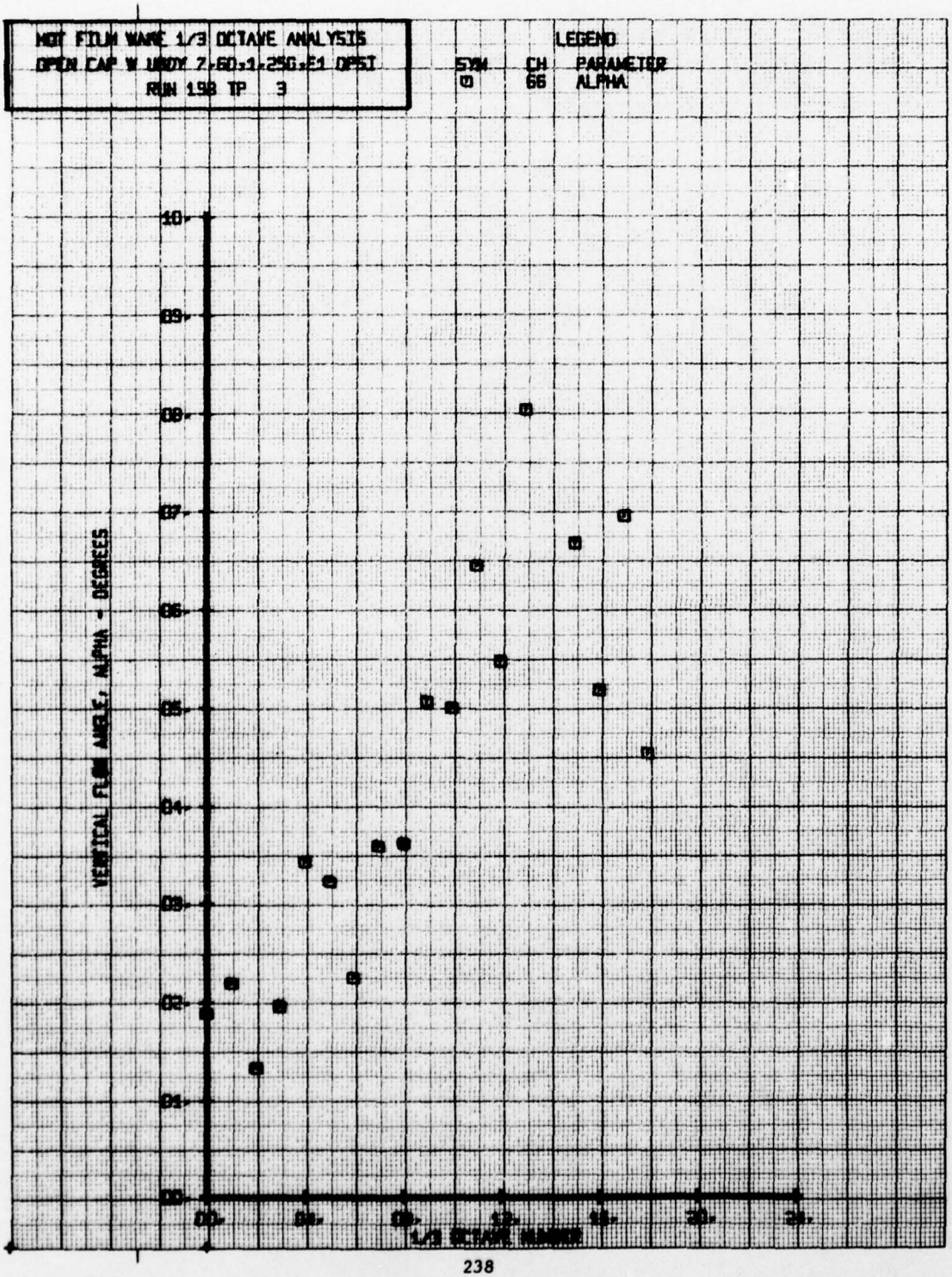

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBDY 7.60+1.25G.E1
RUN 194 TP 3
LEGEND
SYM CH PARAMETER
65 V-BETA
10
09
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X-Z VELOCITY COMPONENT Y-BETA.CRS
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16
20
24
1/3 OCTAVE NUMBER

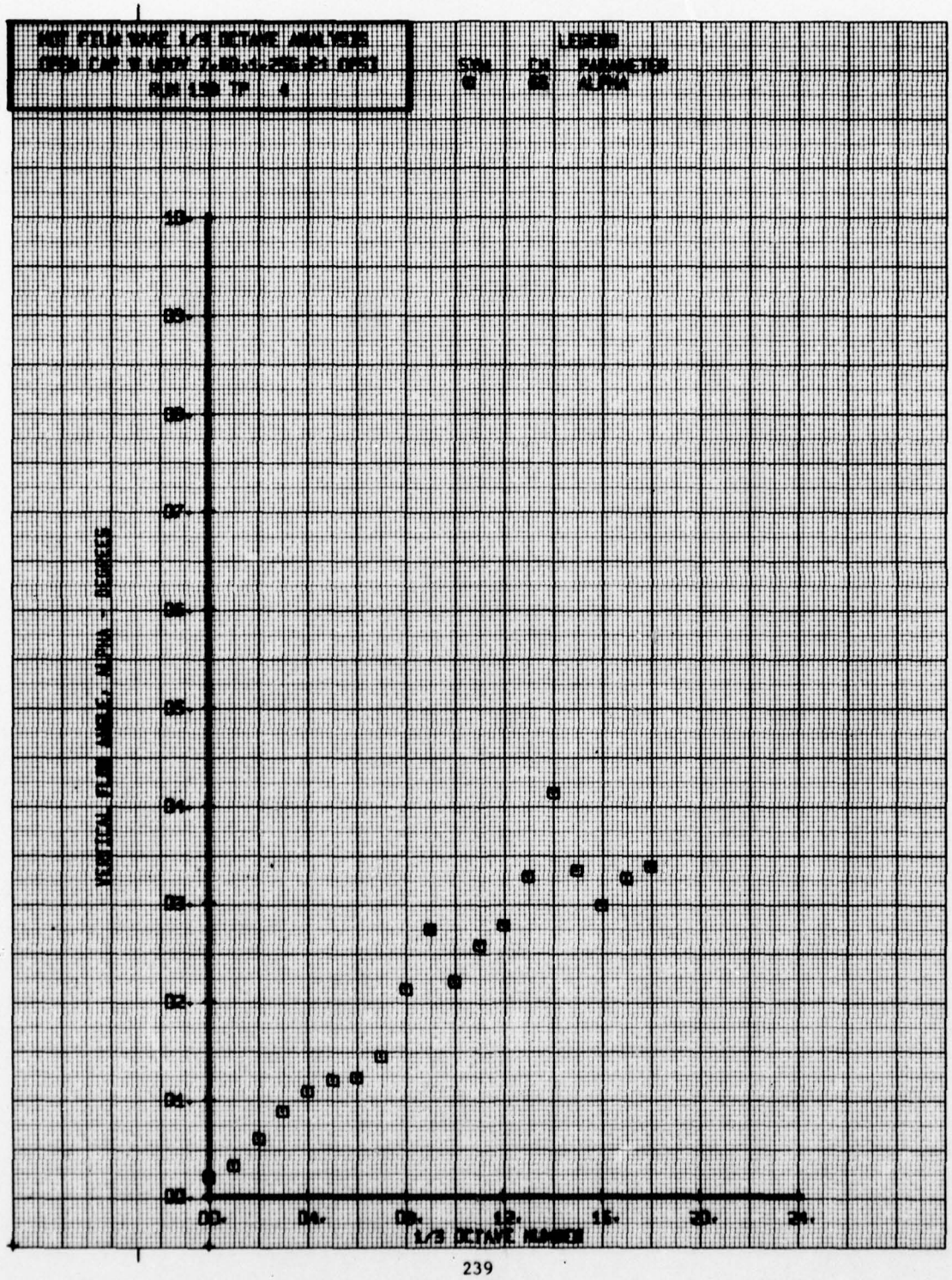

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBDY 7.60,1.25,E1
RUN 194 TP 4
LEGEND
SYM CH PARAMETER
65 V-BETA
10.
09.
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X-Z VELOCITY COMPONENT V-BETA FRS
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1/3 OCTAVE NUMBER

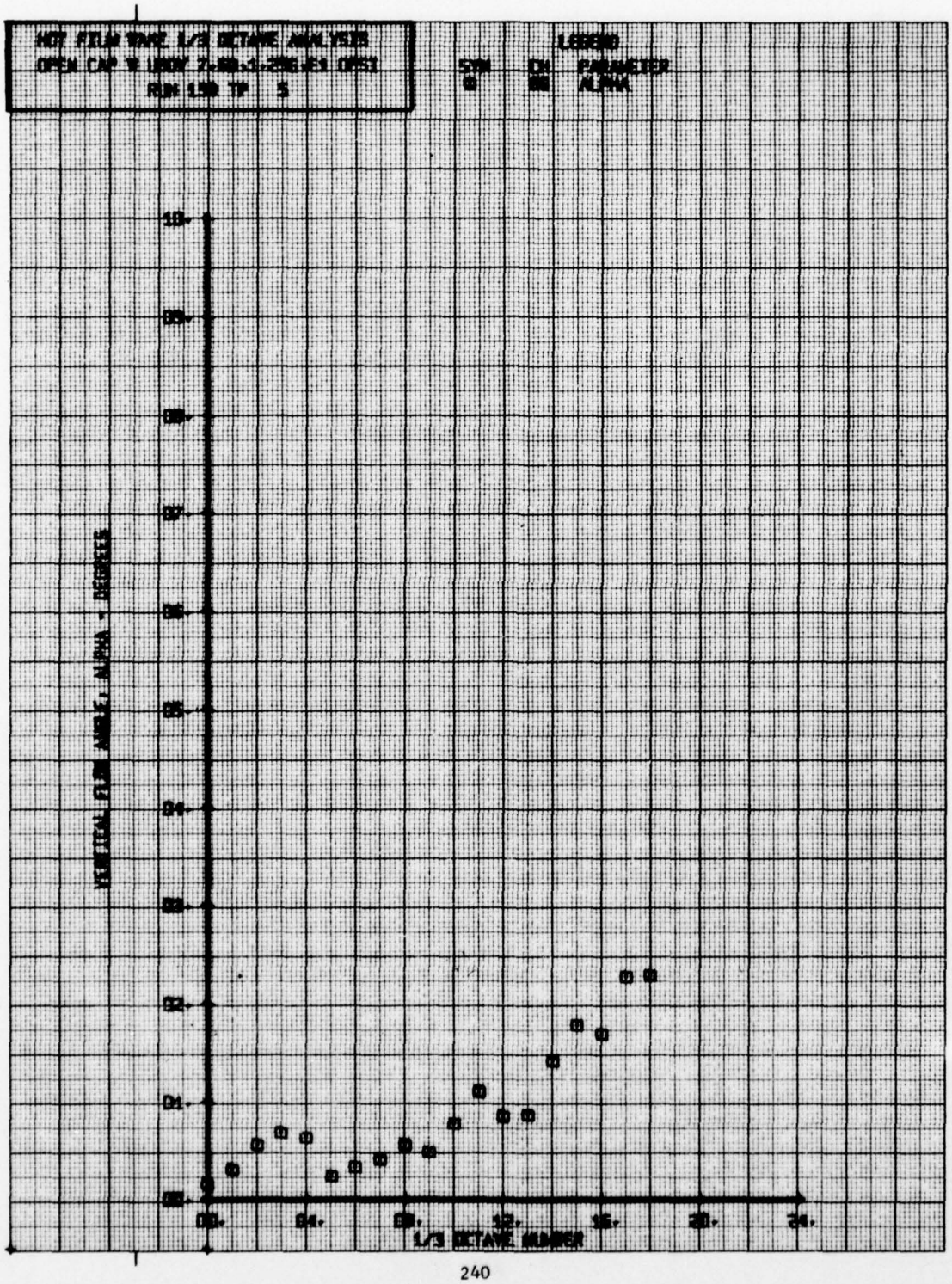

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAR W LIDDY 7.50-1.25-.62
RUN L9A TP 5
LEGEND
SYM CH PARAMETER
65 V-BETA
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X-Z VELOCITY COMPONENT V-BETA FDS
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1/3 OCTAVE NUMBER

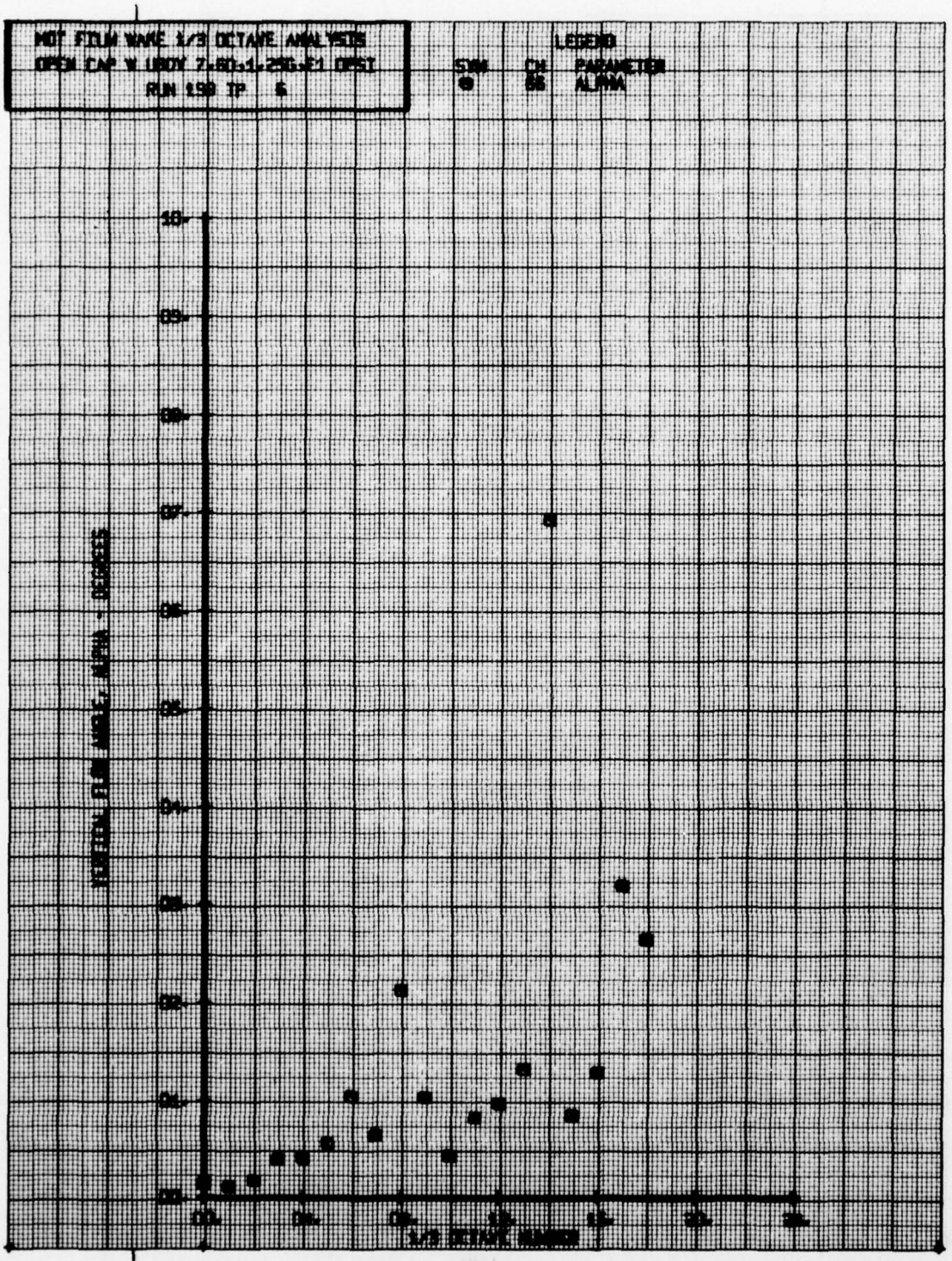

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W WIDTH 7.50+1.25+.51
RUN 134 TP 6
LEGEND
SYM CH PARAMETER
V-BETA
X-Z VELOCITY COMPONENT V-BETA FPS
1/3 OCTAVE NUMBER

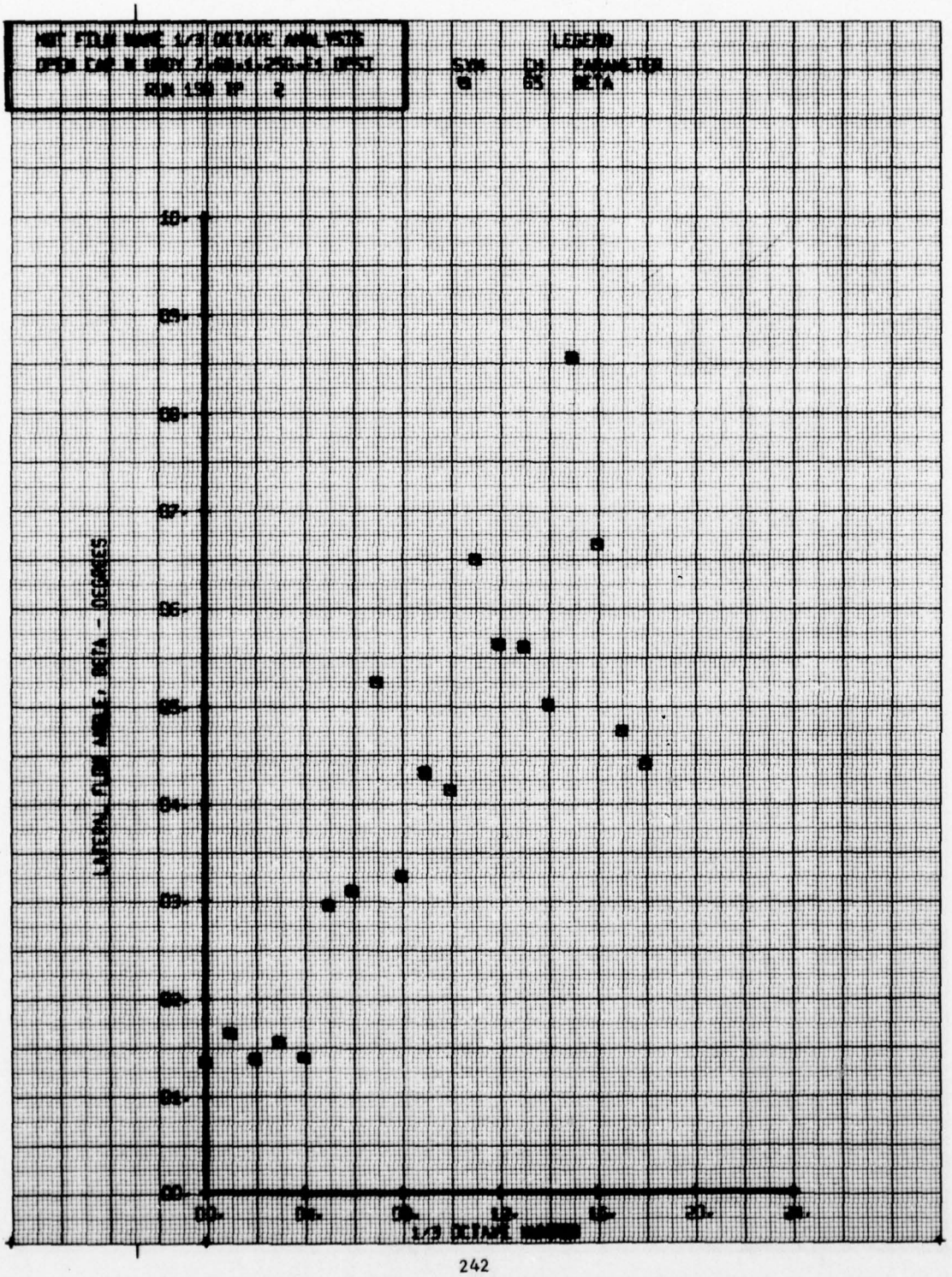

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBDY 7.60.1.256.E1 OPSI
RUN 159 TP 2
LEGEND
SYM CH PARAMETER
66 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

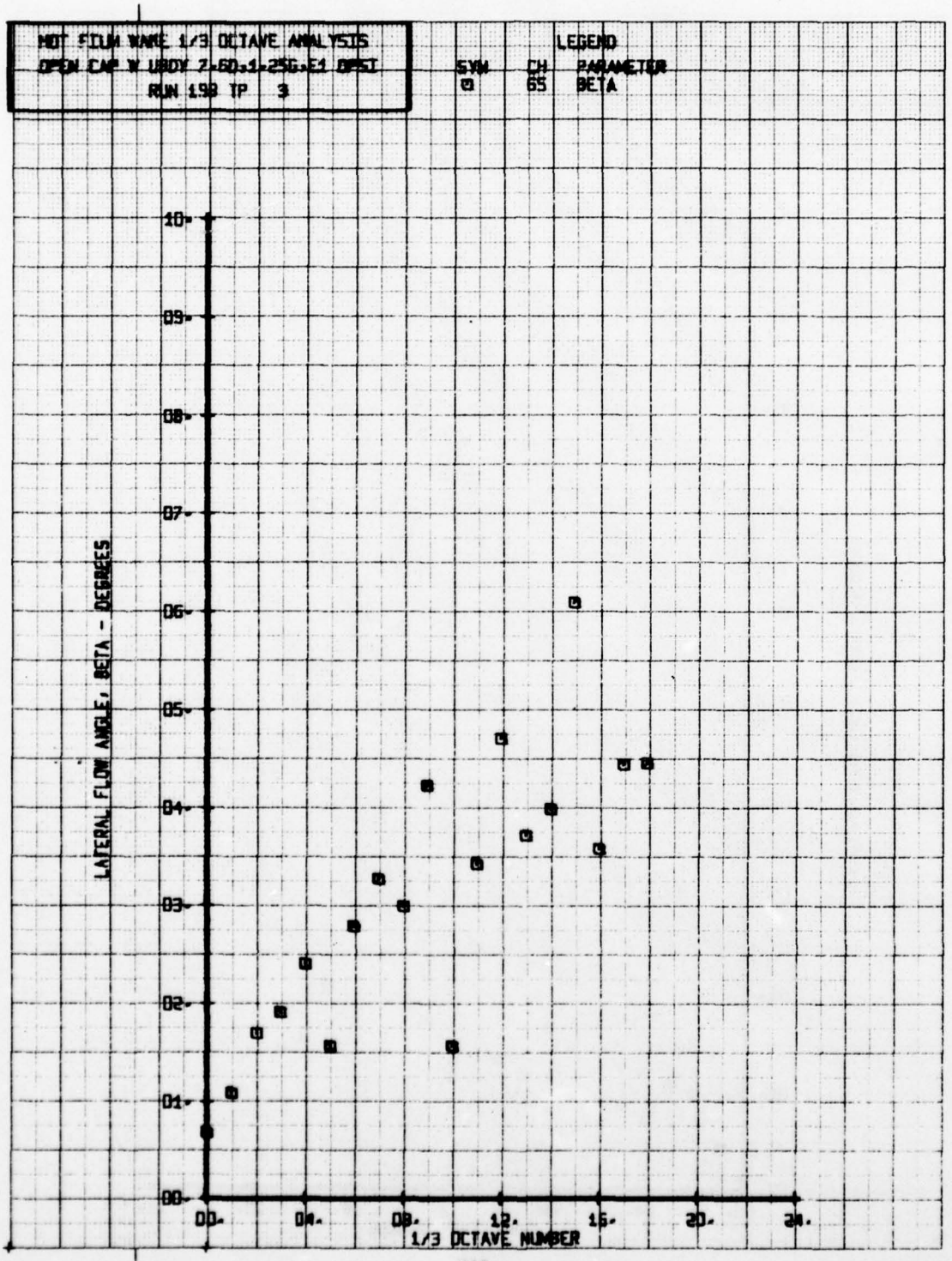

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBODY 7.60,1.25G,21 DPSI
RUN 198 TP 3
LEGEND
SYM CH PARAMETER
66 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
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1/3 OCTAVE NUMBER

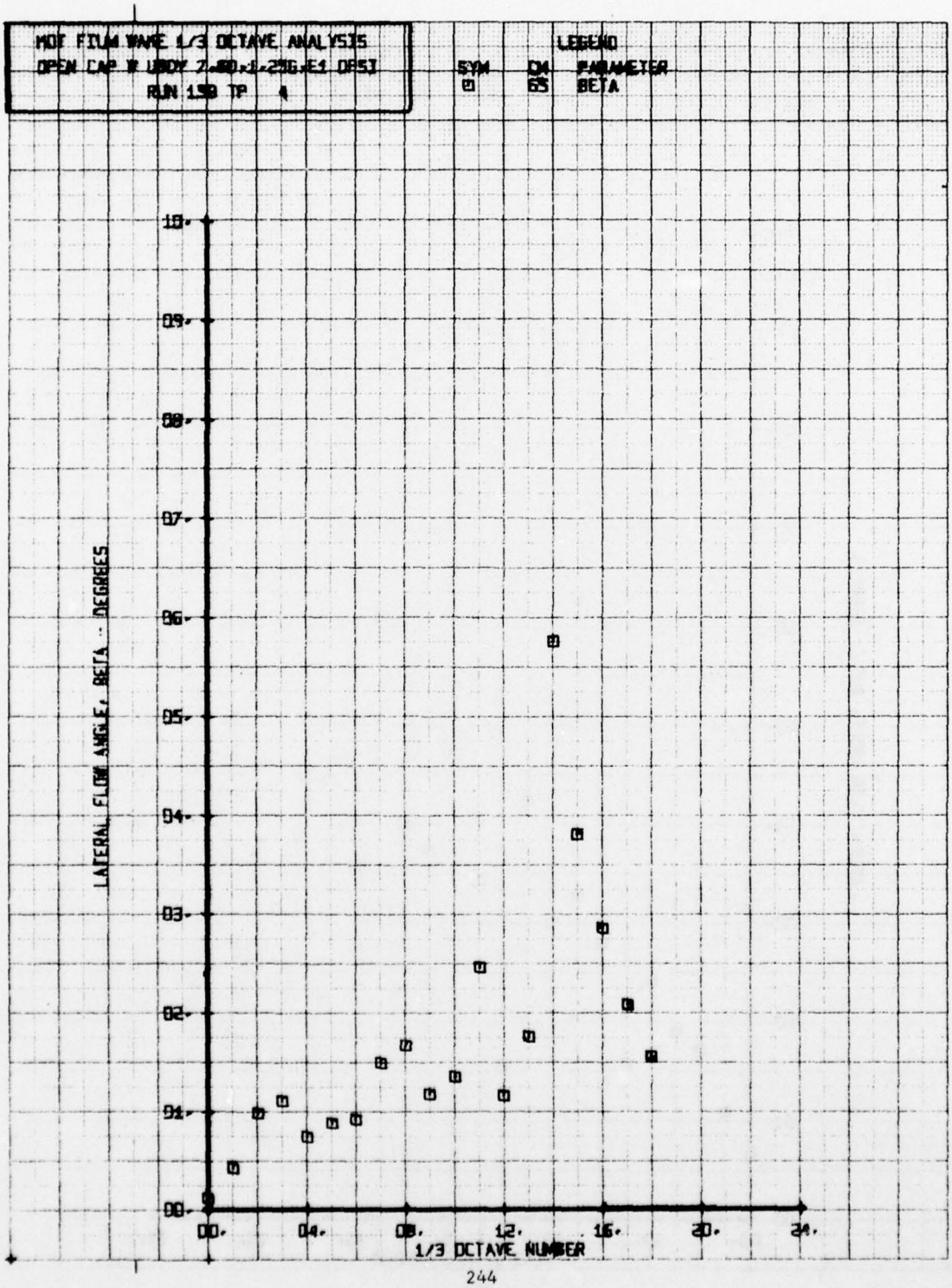

LEGEND
SYM DR PARAMETER
ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

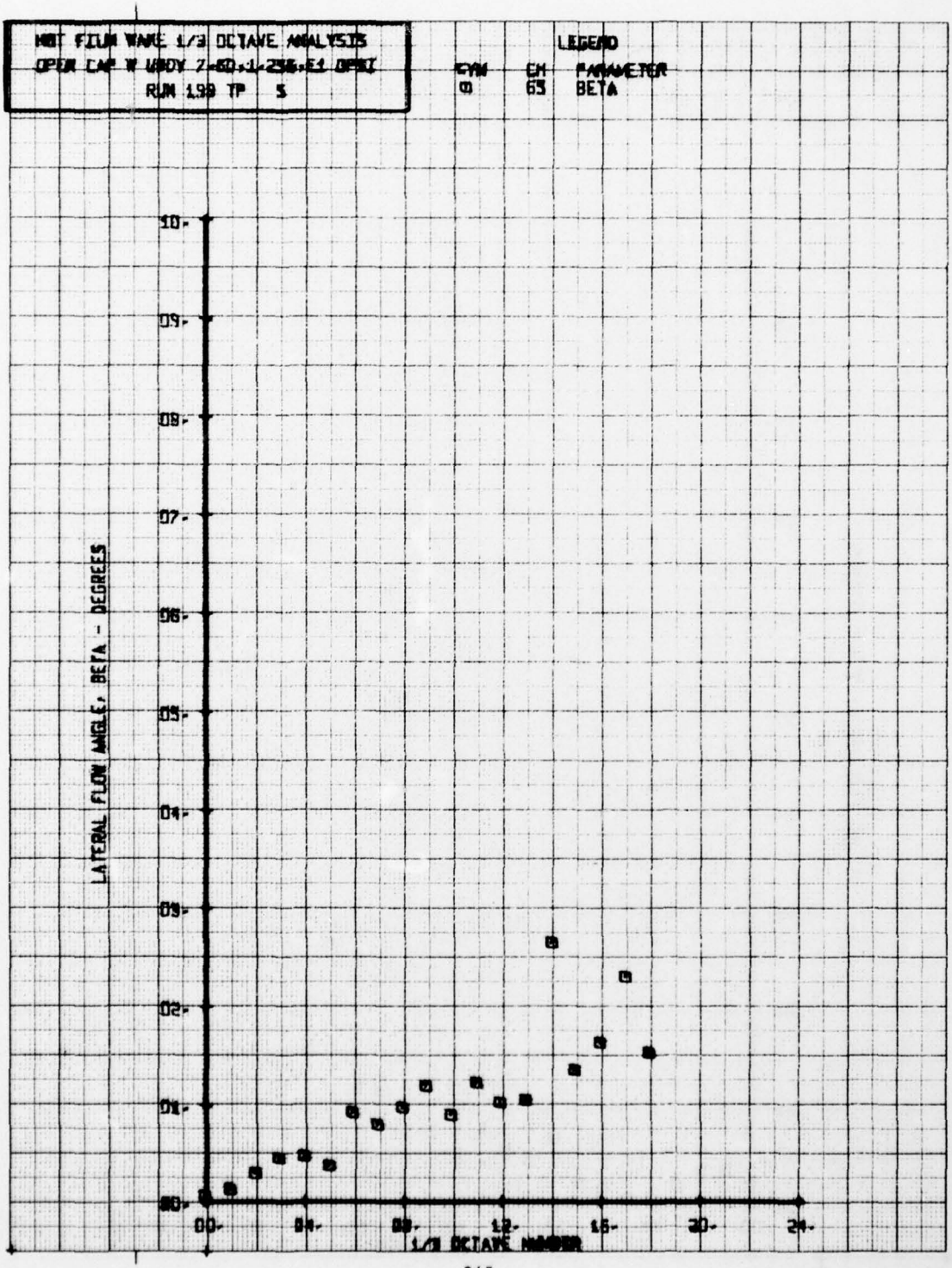

HOT FILM TAKE 1/3 OCTAVE ANALYSIS
OPEN CAP 9 LOOK Z=69.1-256.61 OFST
RUN 139 TP 5
LEGEND
SYM
CH
PARAMETER
ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

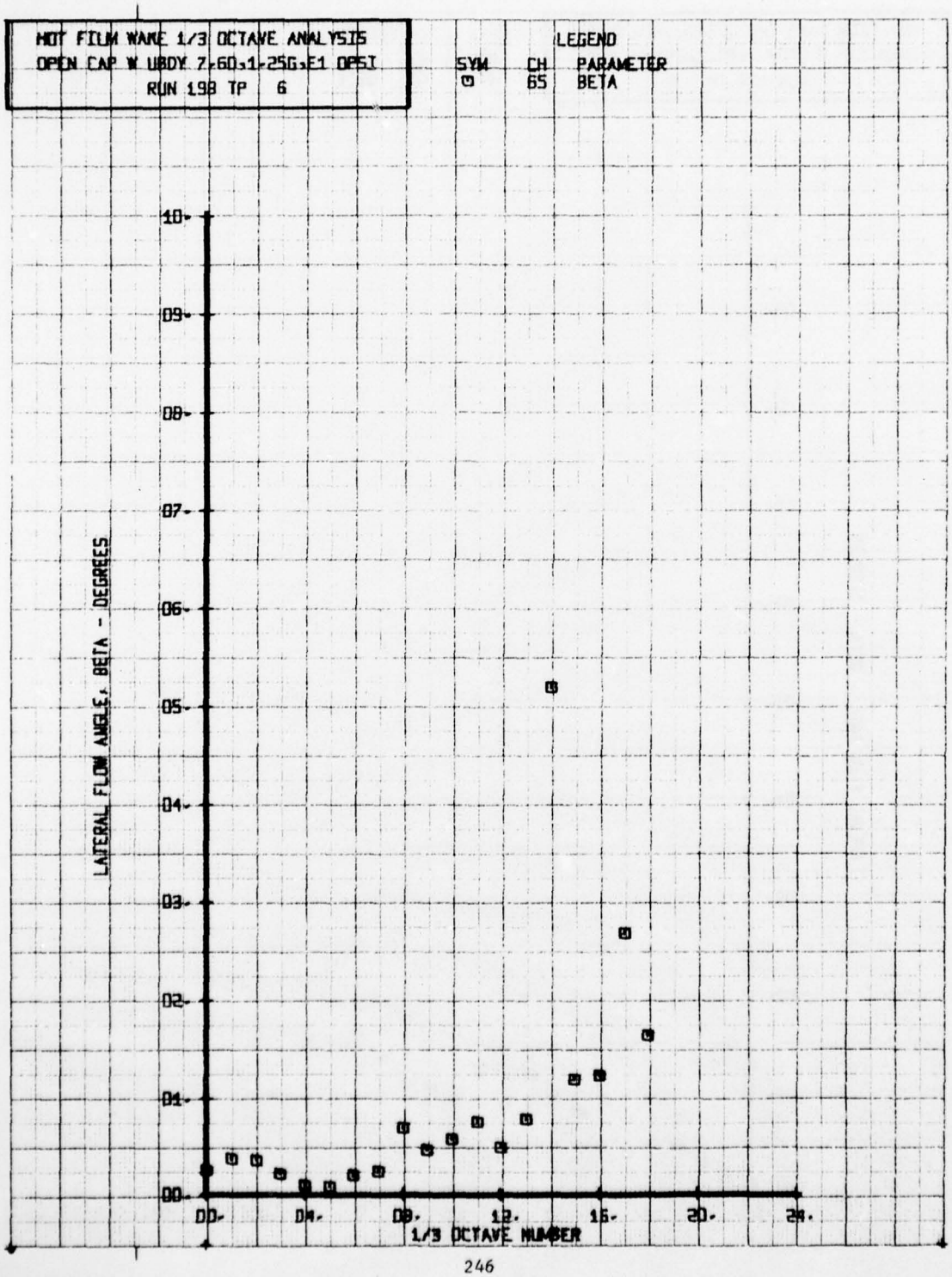

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W LBOV 7.80,1.20,21 DEGI
RUN 190 TP 6
LEGEND
SYM CH PARAMETER
● 65 ALPHA
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1/3 OCTAVE BANDS

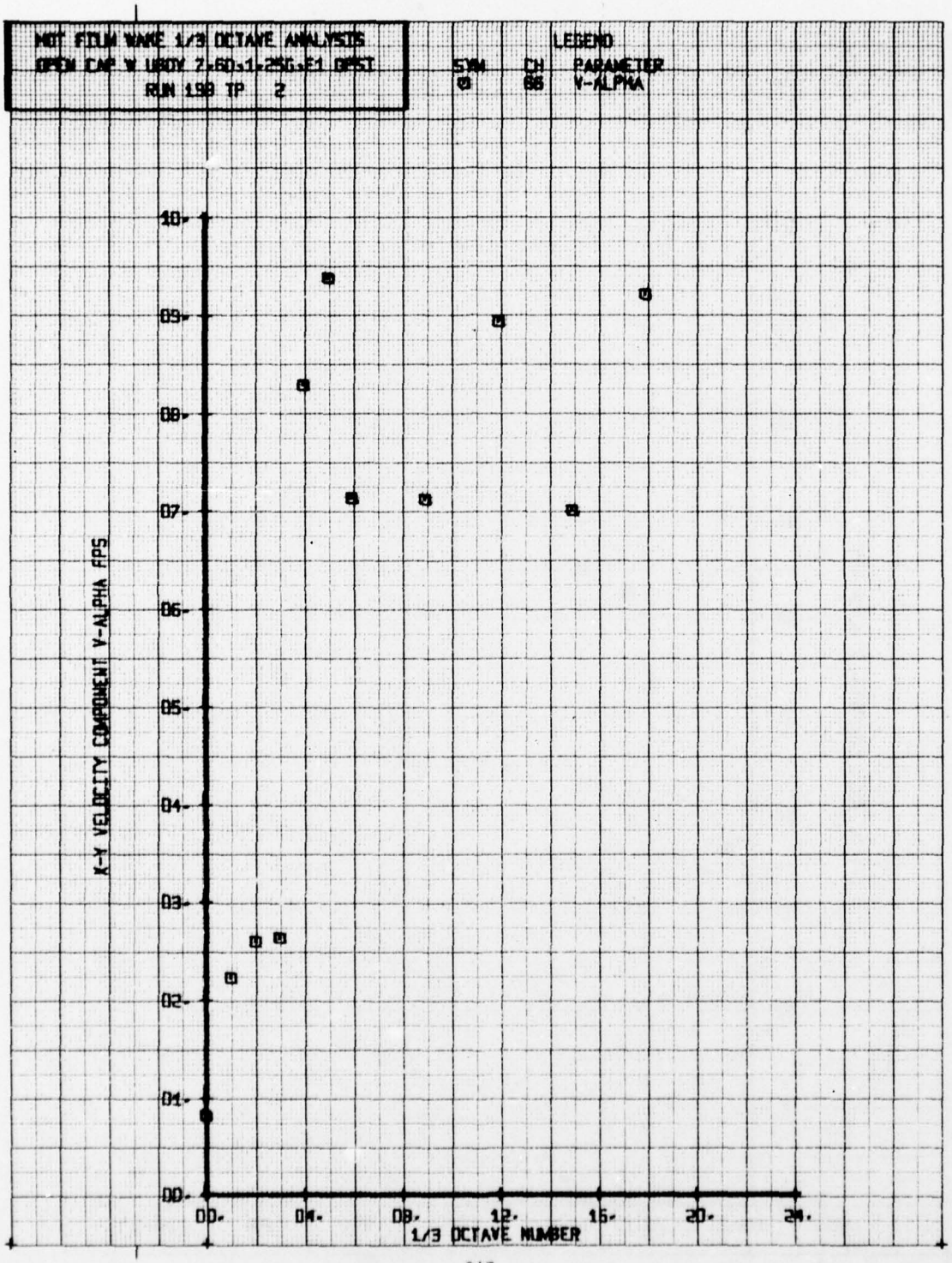

LEGEND
SYM
ID
PARAMETER
BETA
LATERAL CLOSE ANGLE, BETA - DEGREES
1/3 OCTAVE

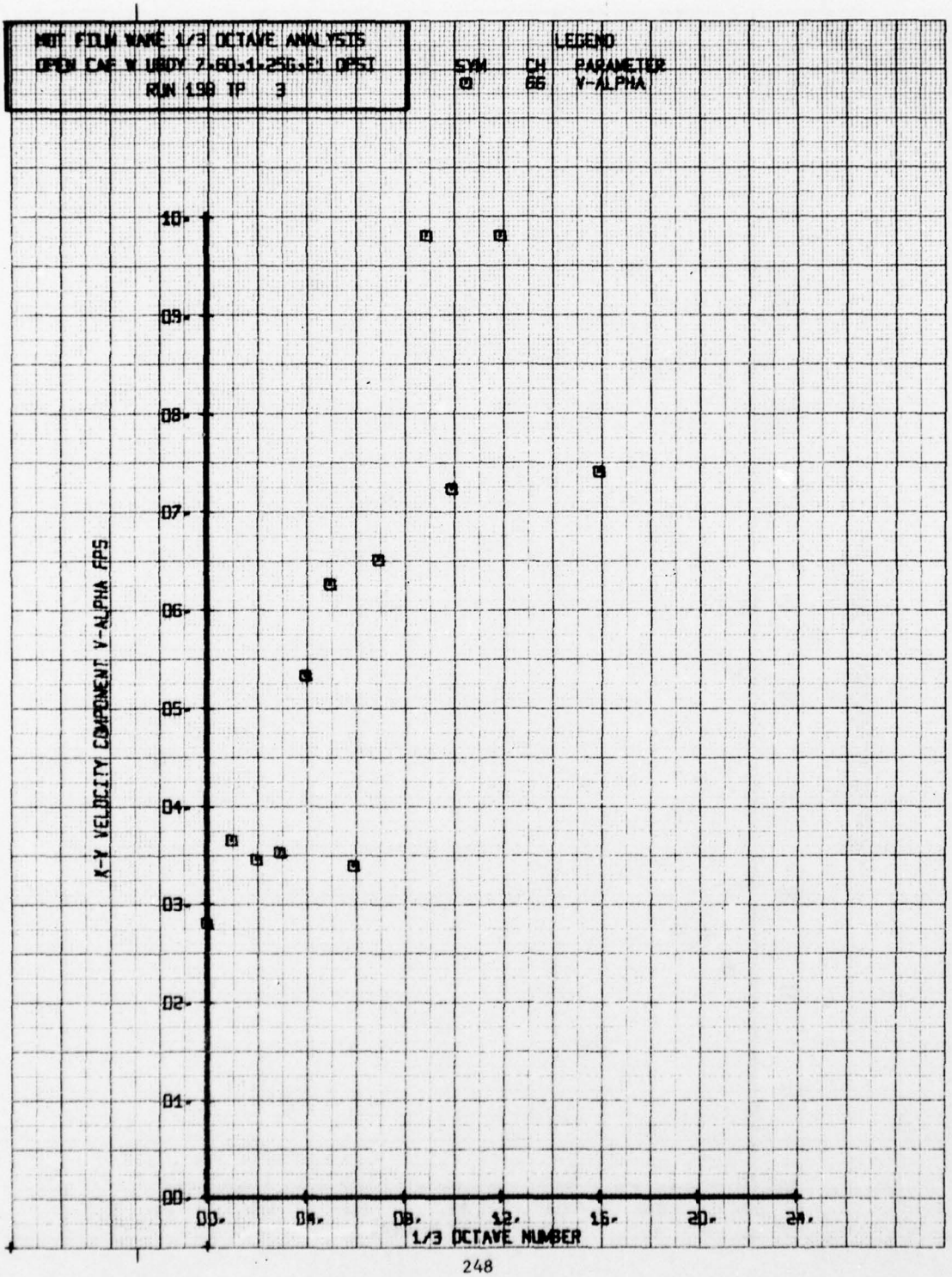

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBDY Z-60.1-25G.E1 DPSI
RUN 198 TP 3
LEGEND
SYM CH PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
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1/3 OCTAVE NUMBER

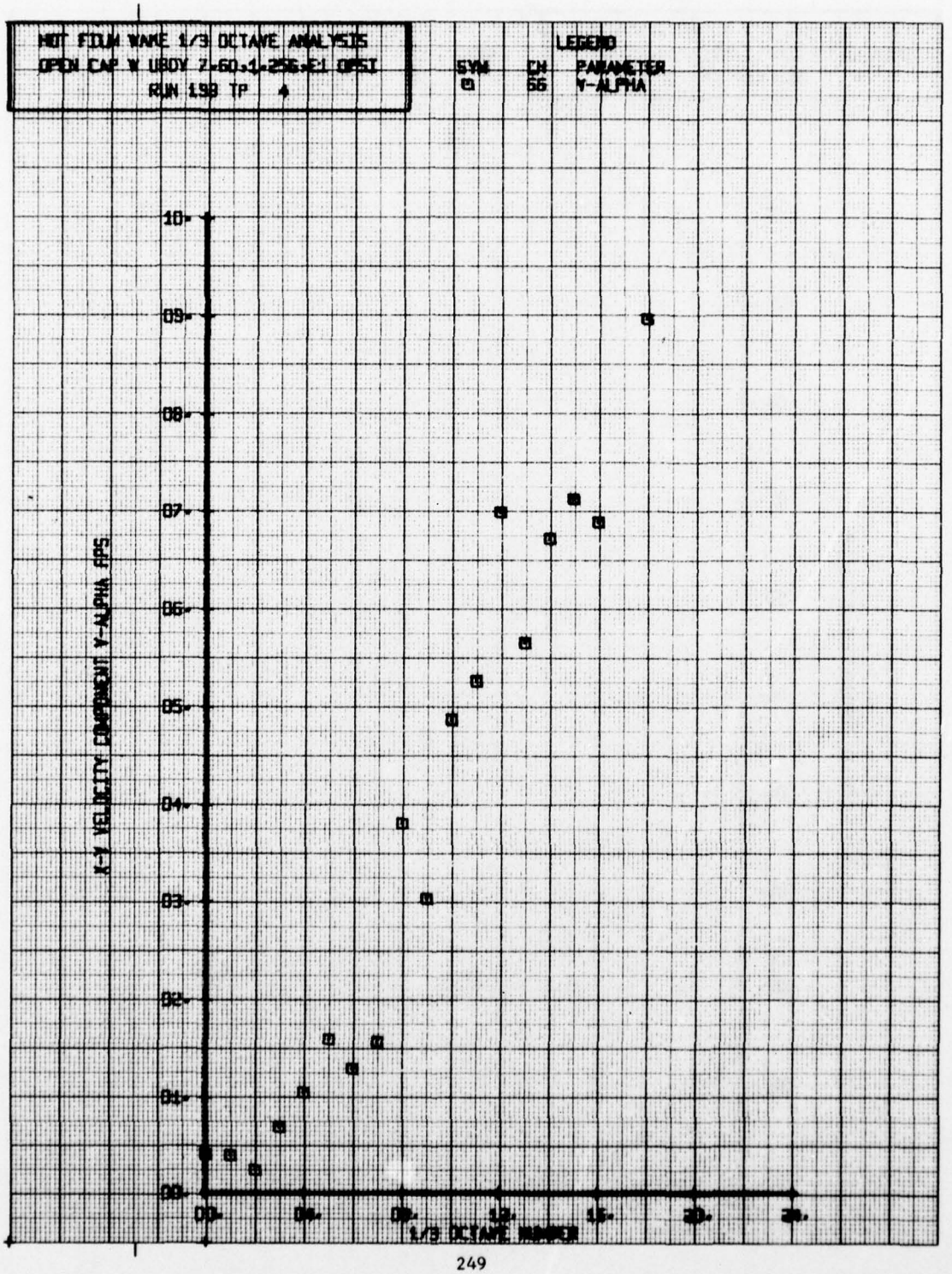

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W BODY 7.80.1.25G.E1 OFSI
RUN 150 TP 4
LEGEND
SYM ID4 PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
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1/3 OCTAVE NUMBER

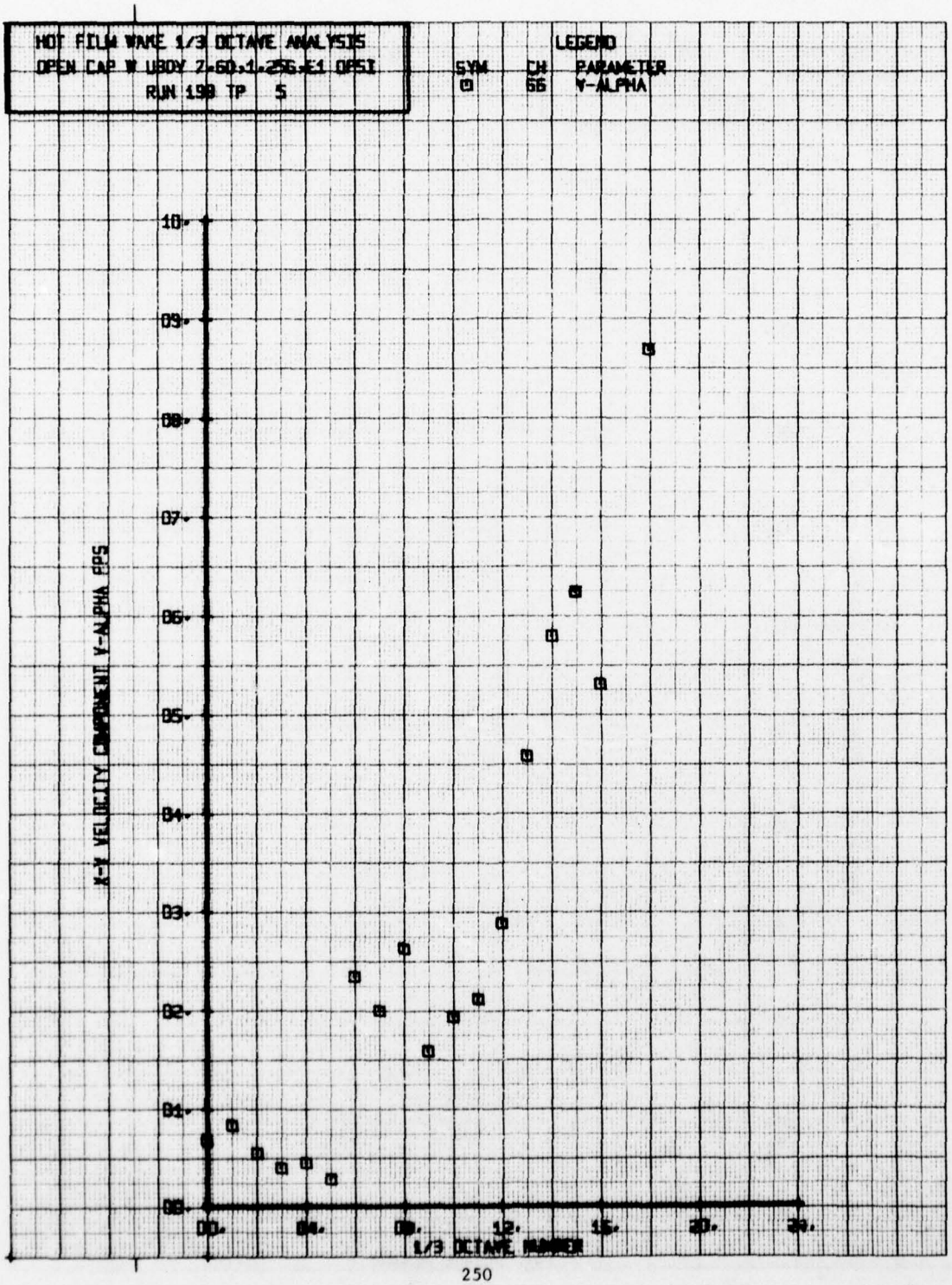

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W HBOY 7-60,1-256,E1 OPRT
RUN 198 TP 5
LEGEND
CYM CM PARAMETER
0 65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
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1/3 OCTAVE NUMBER

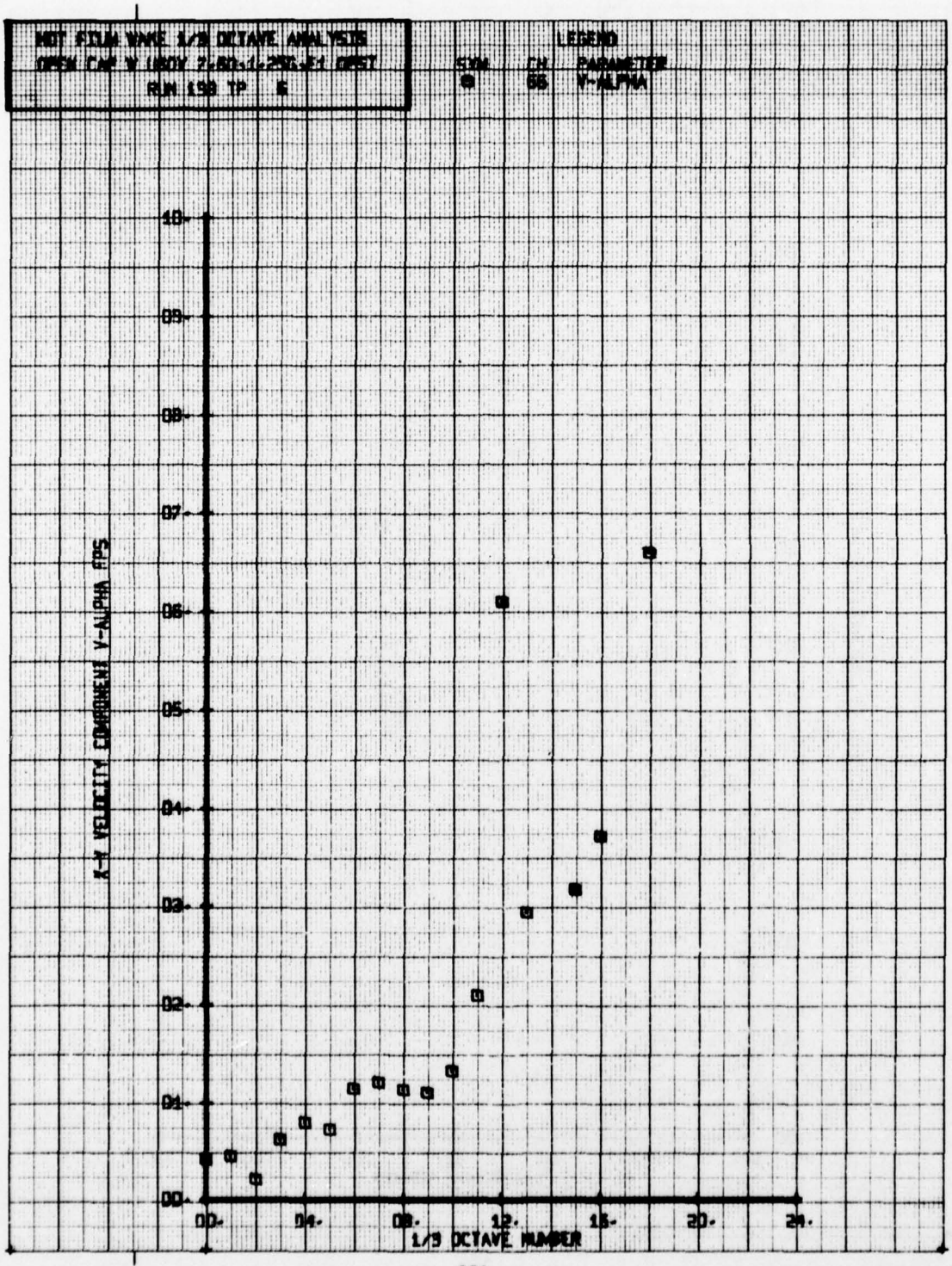

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBDY 7.60,1.25G,E1 DPSI
RUN 198 TP 6
LEGEND
SYM CH PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
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1/3 OCTAVE NUMBER

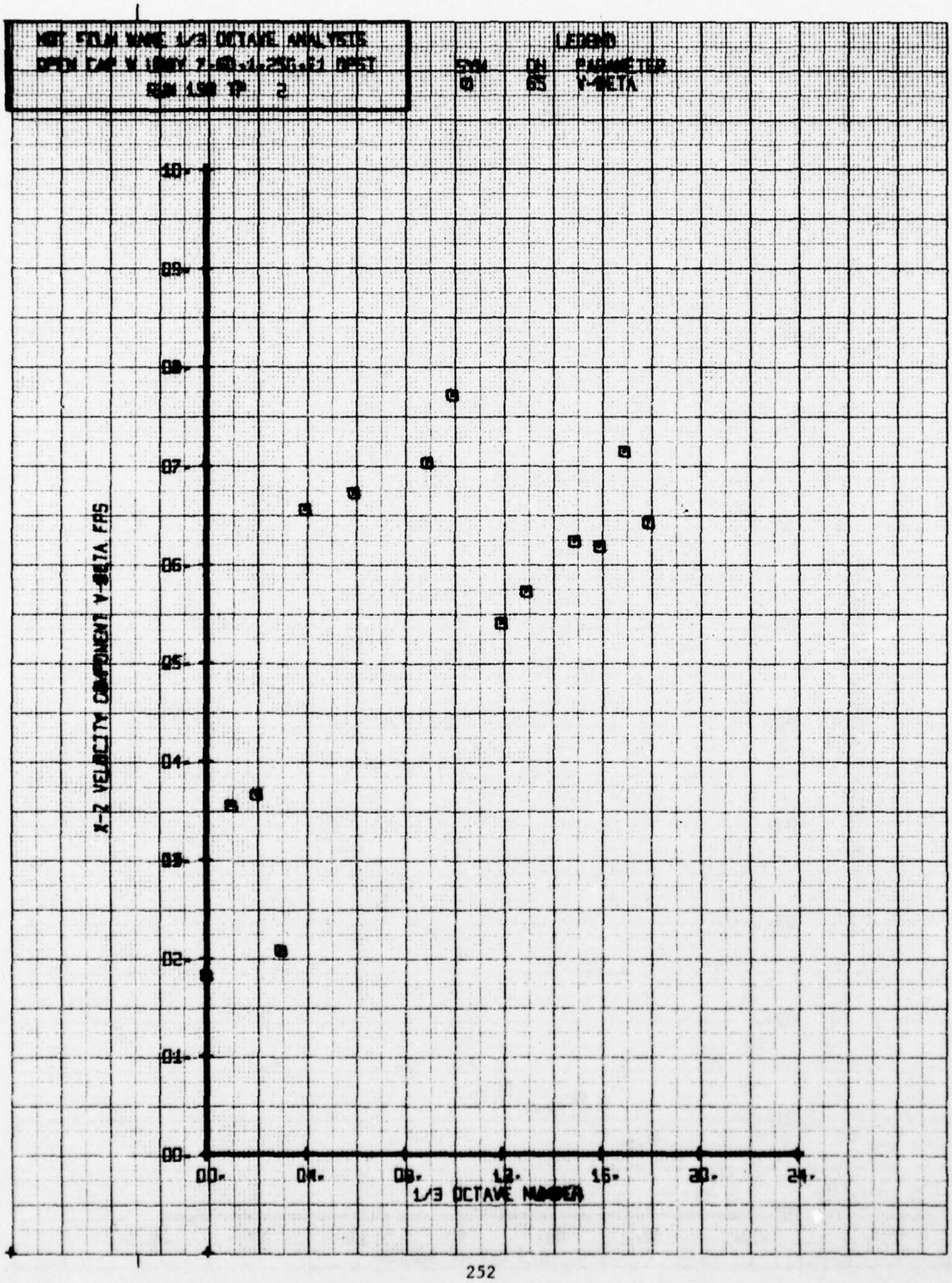

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBDY 7.60,1.250,E1 DPST
RUN 198 TP 2
LEGEND
SYM CH PARAMETER
@ 66 V-ALPHA
10.
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X-Y VELOCITY COMPONENT V-ALPHA FPS
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16.
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24.
1/3 OCTAVE NUMBER

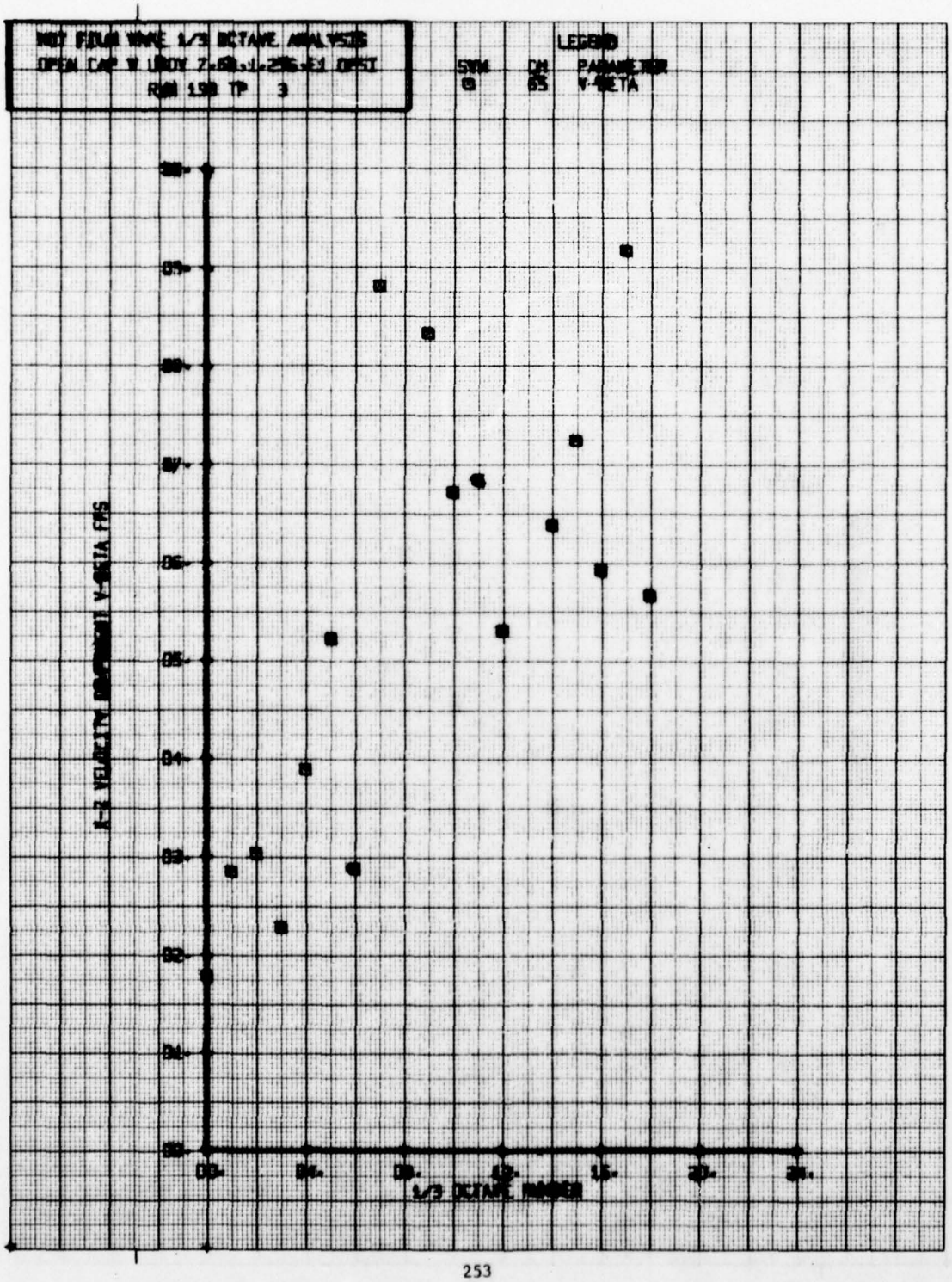

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAV W UBOY 7.60,1.25G,E1 OPSI
RUN 198 TP 3
LEGEND
SYM CH PARAMETER
V-ALPHA
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X-Y VELOCITY COMPONENT V-ALPHA RPS
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1/3 OCTAVE NUMBER

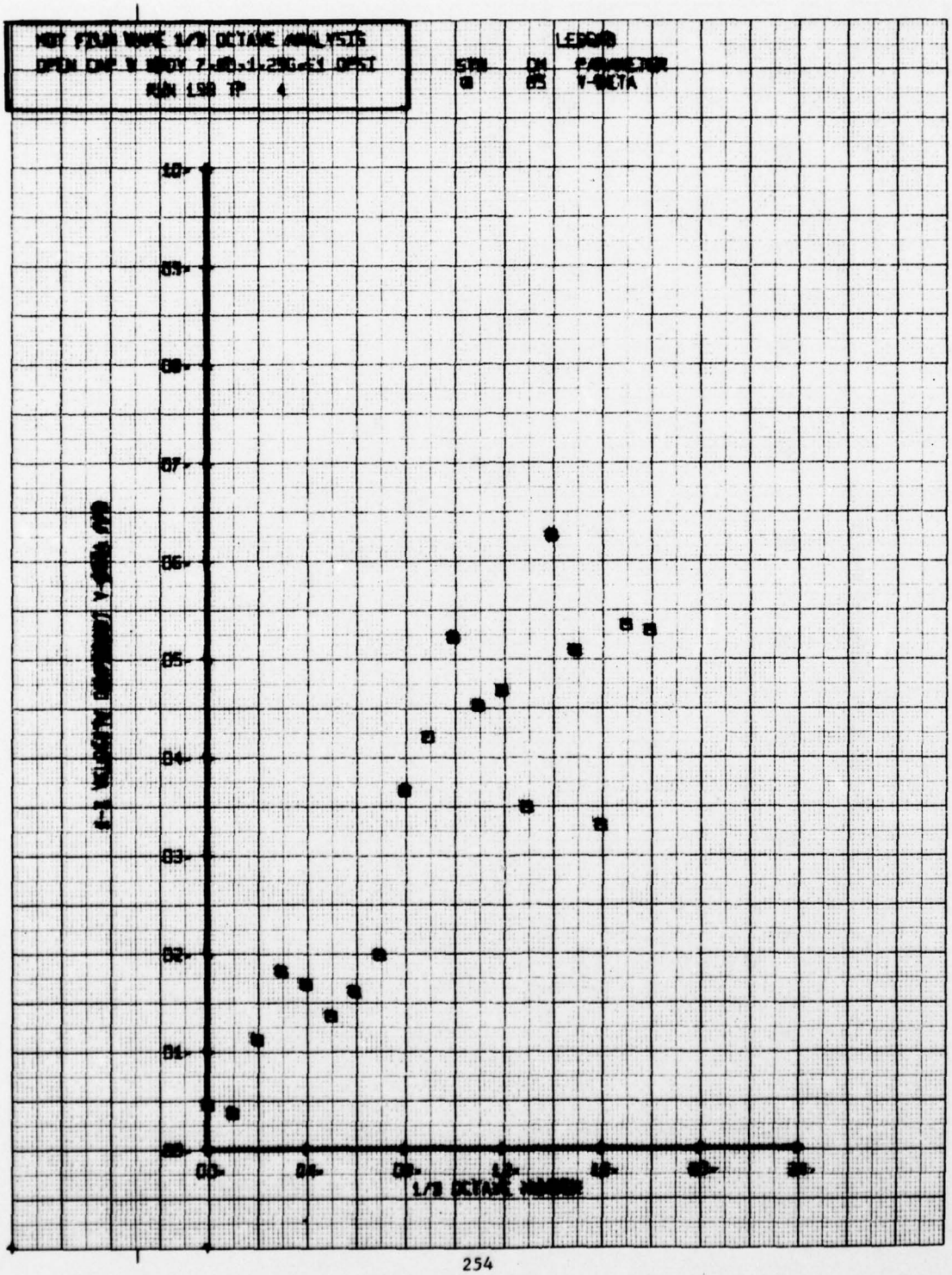

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY Z=60.1=256.E1 OPSI
RUN 198 TP 4
LEGEND
SYM CH PARAMETER
56 Y-ALPHA
X-Y VELOCITY COMPONENT Y-ALPHA RPS
1/3 OCTAVE NUMBER

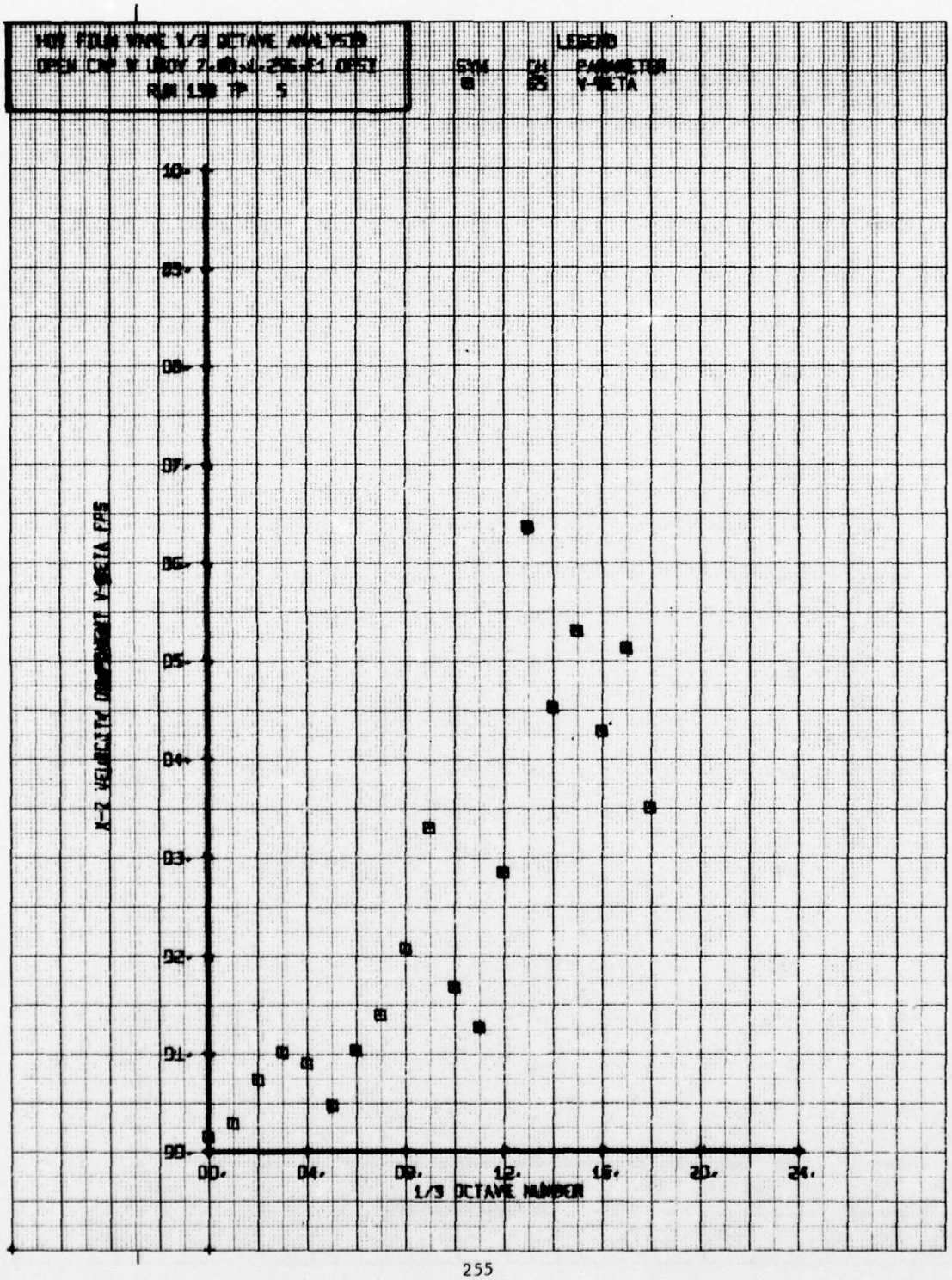

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 7.60.1.256.E1 OPSI
RUN 198 TP 5
LEGEND
SYM CH PARAMETER
66 Y-ALPHA
X-Y VELOCITY COMPONENT Y-ALPHA FPS
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1/3 OCTAVE NUMBER

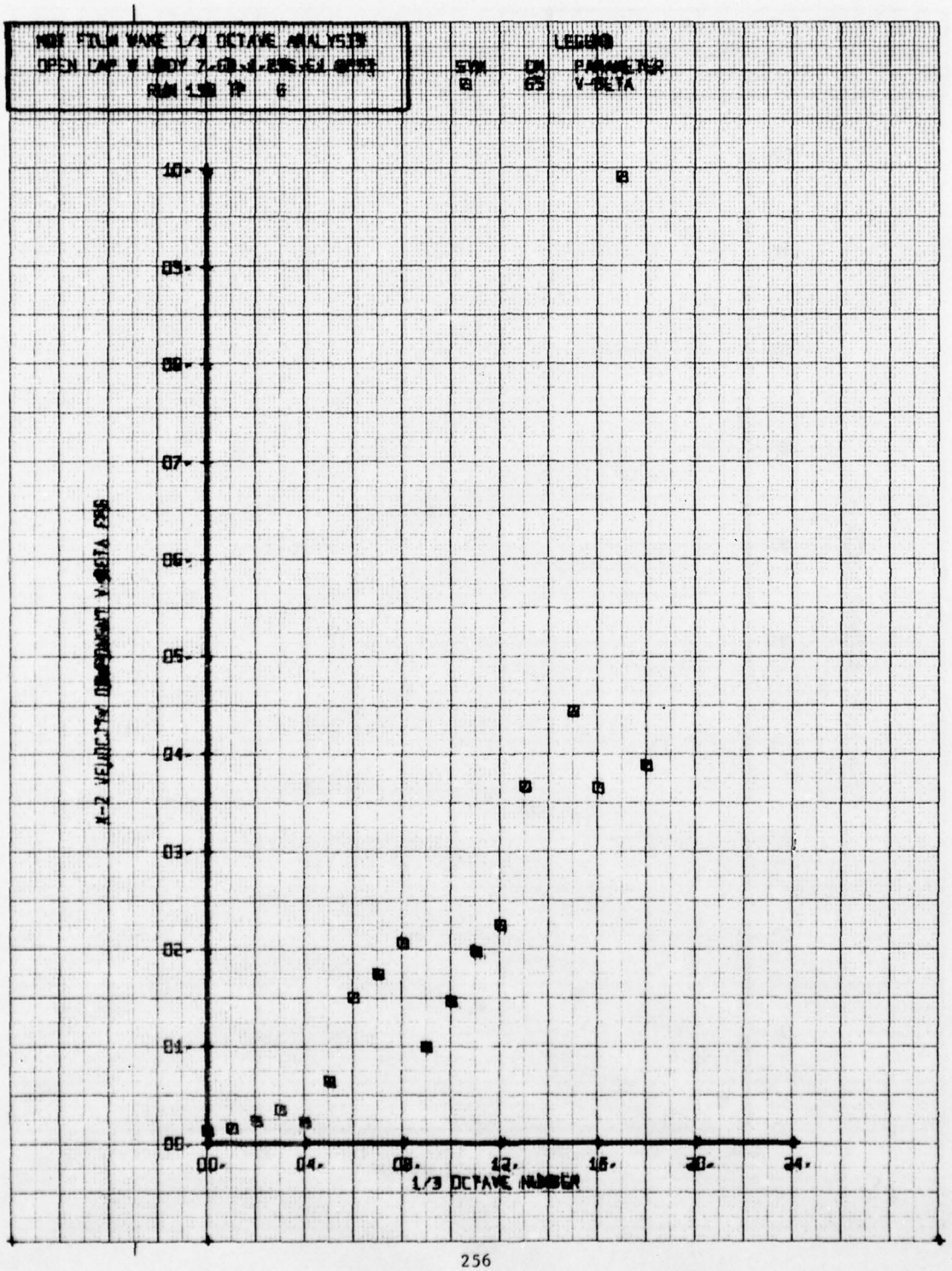

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP V (BODY 7.80,1.25D,21 DEEP
RUN 198 TP 6
LEGEND
SYM CH PARAMETER
55 V-ALPHA
X-V VELOCITY COMPONENT V-ALPHA FPS
1/3 OCTAVE NUMBER
10.
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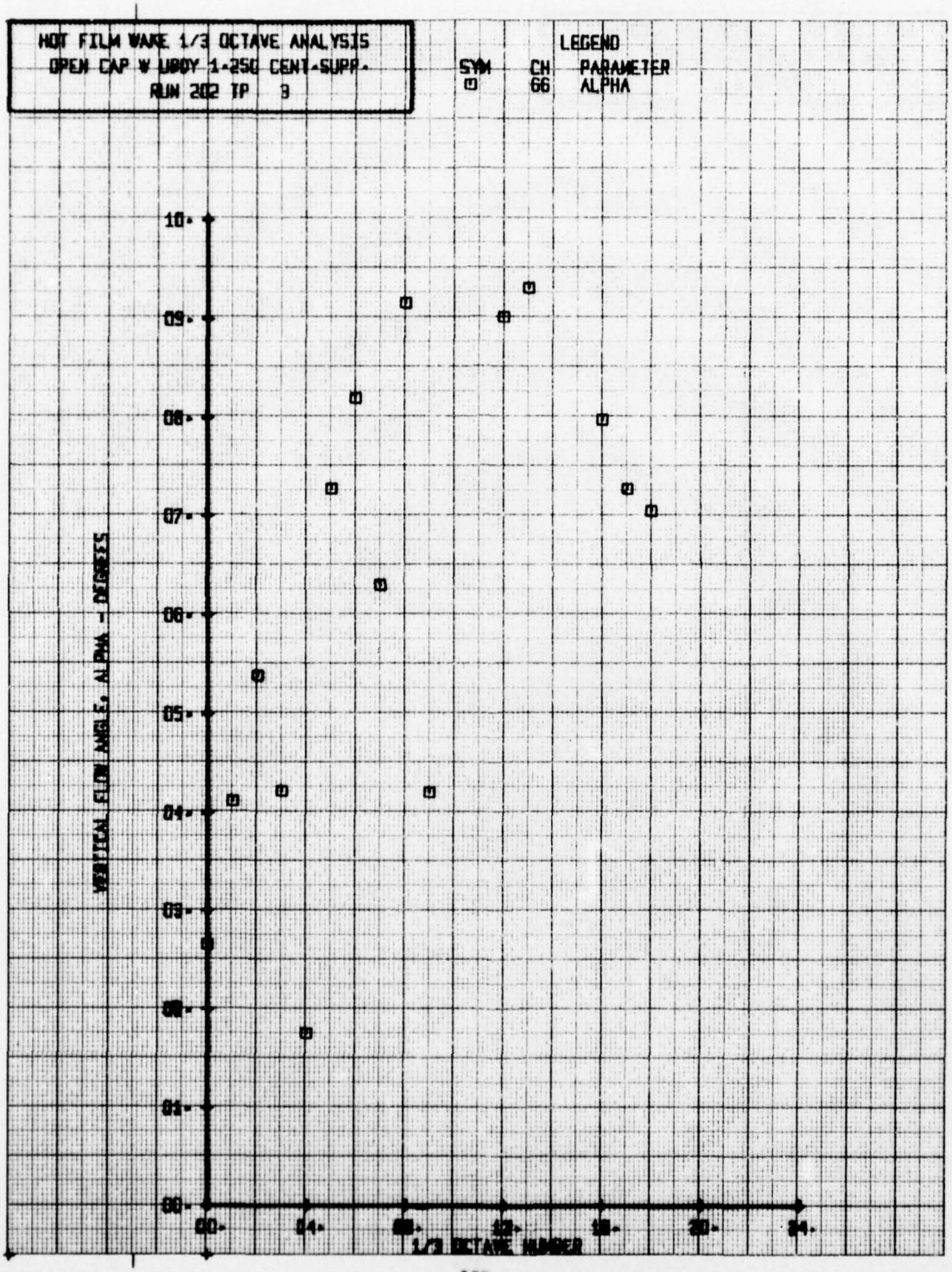

LEGEND
SYM ON PARAMETER
65 Y-DELTA
X-Z VELOCITY COMPONENT Y-DELTA FPS
1/3 OCTAVE NUMBER
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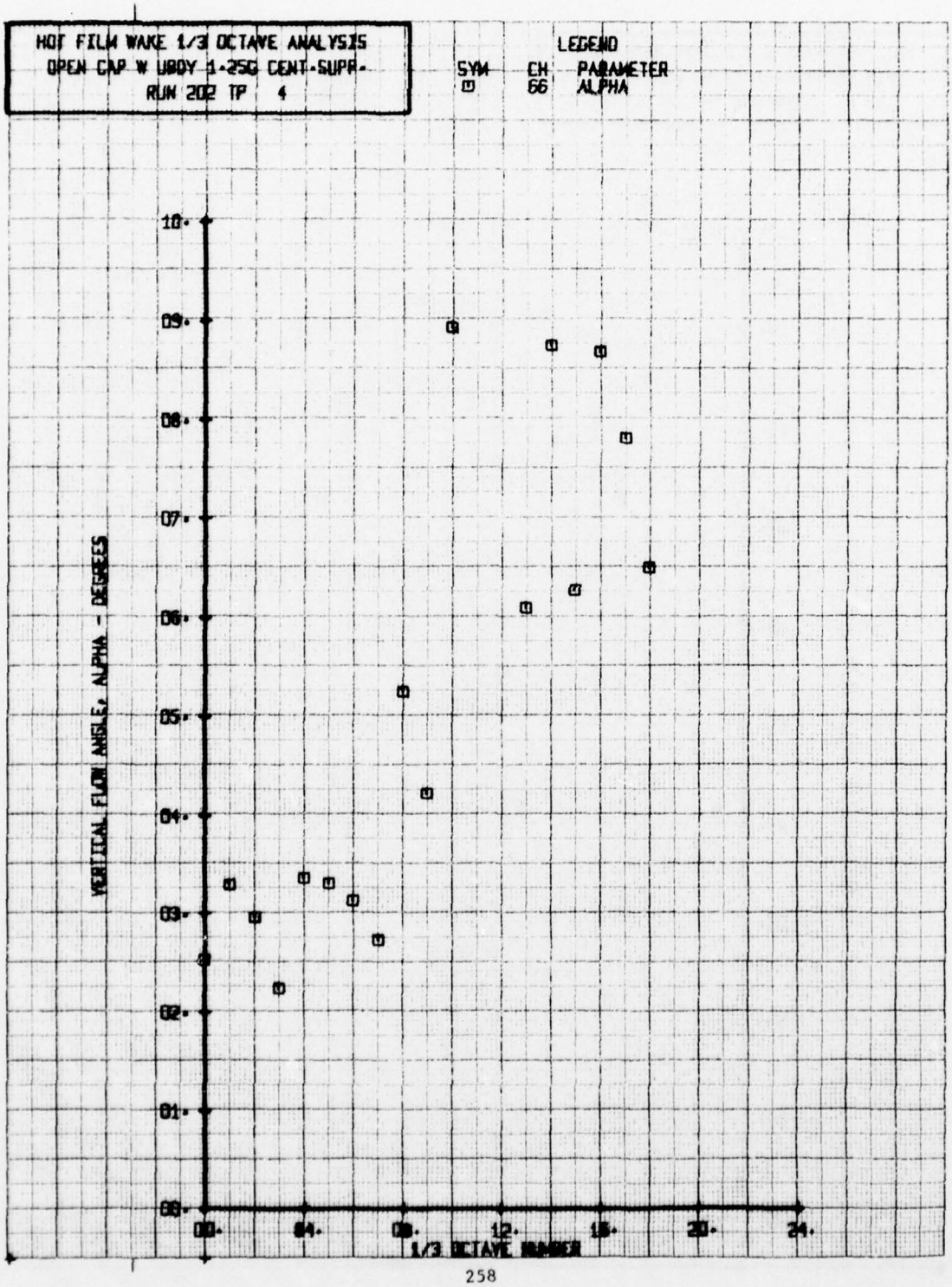

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W LROY 7-68,1-2%6.E1 OFST
RUN 150 TP 3
LEGEND
SYM CH PARAMETER
65 V-BETA
1/3 OCTAVE NUMBER

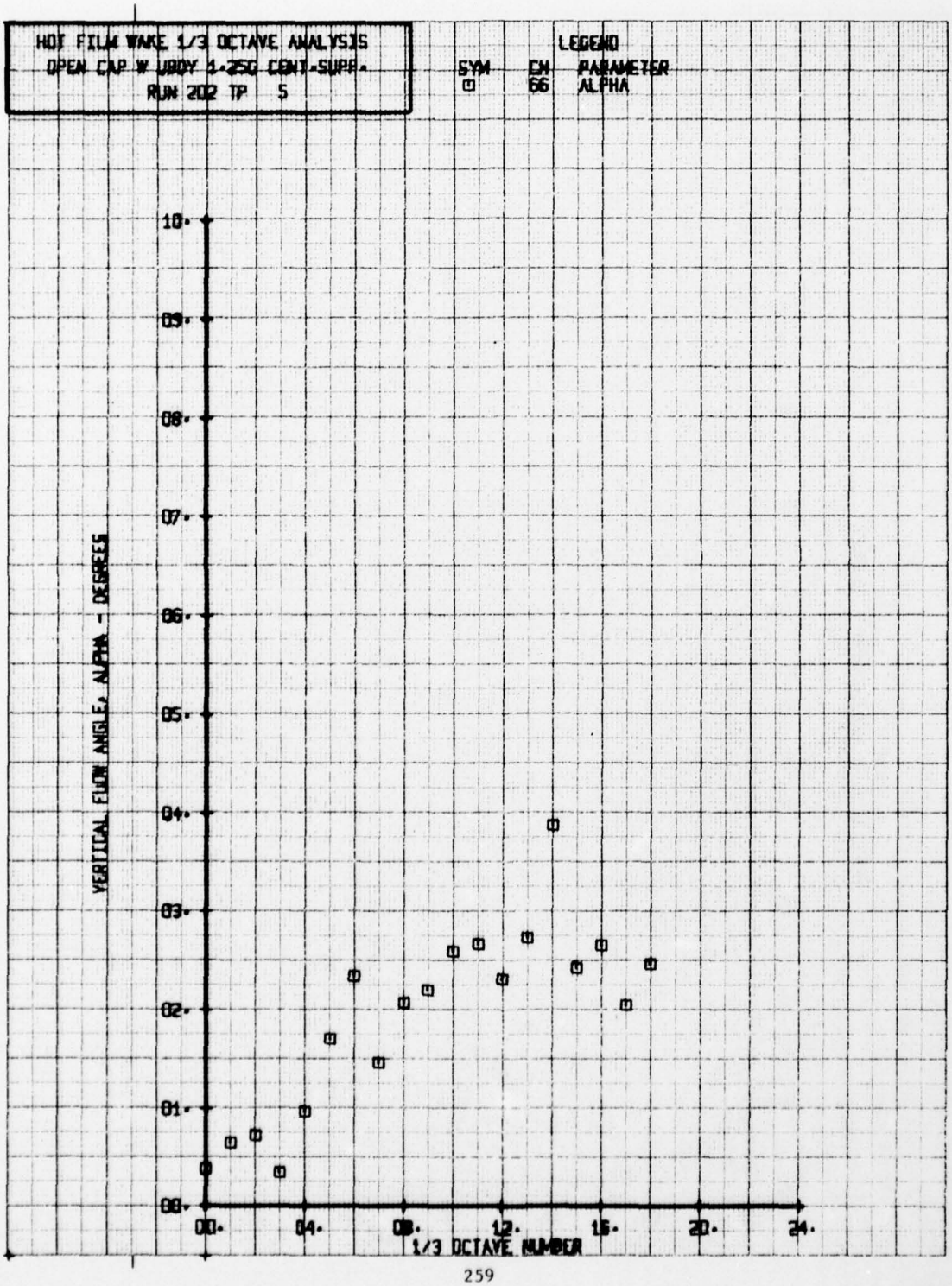

LEGEND
SYM
DM
PARAMETER
V-DELTA
1/3 OCTAVE

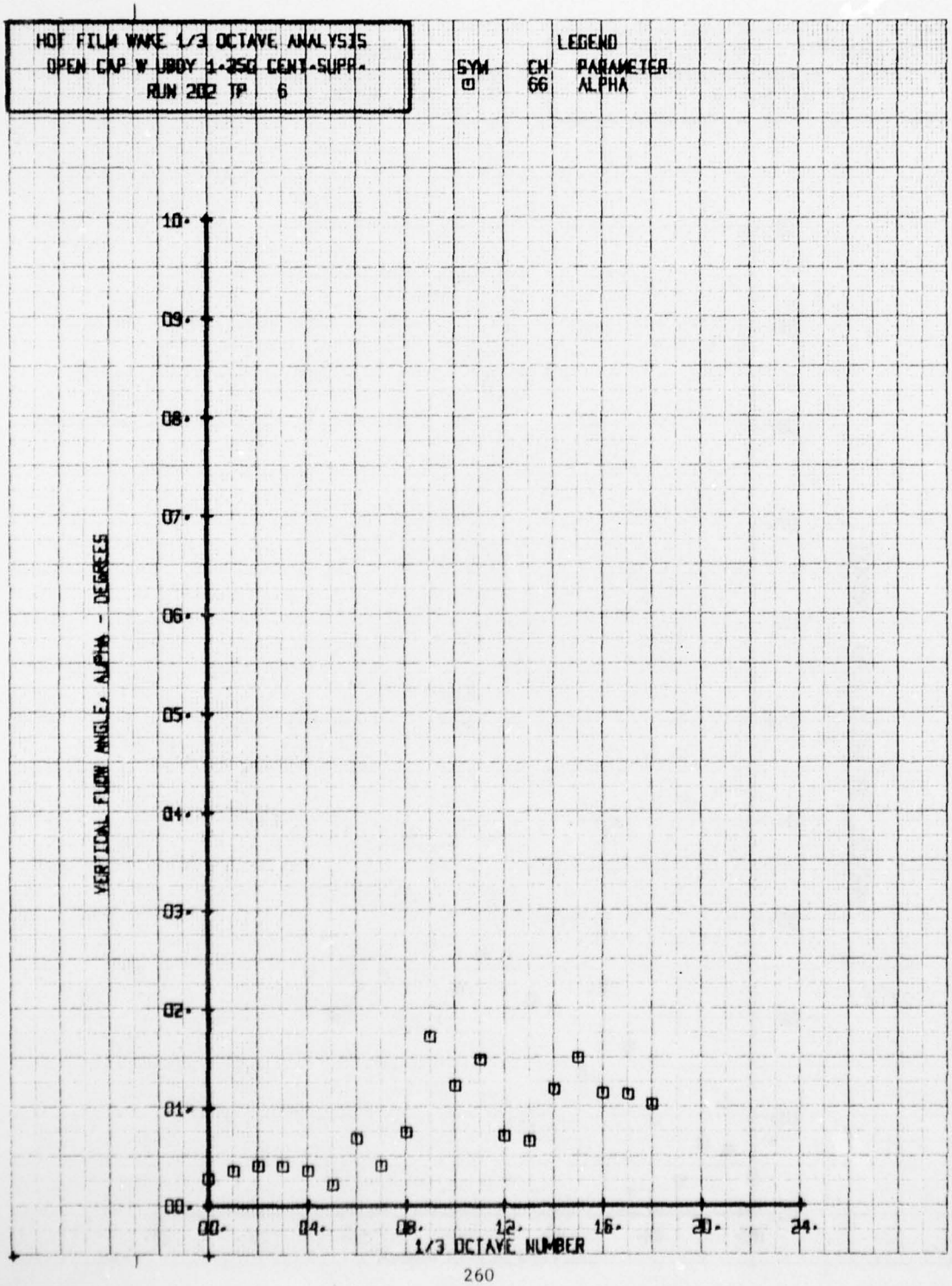

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
RUN 158 TP 5
LEGEND
SYM CH PARAMETER
Y-BETA
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1/3 OCTAVE NUMBER

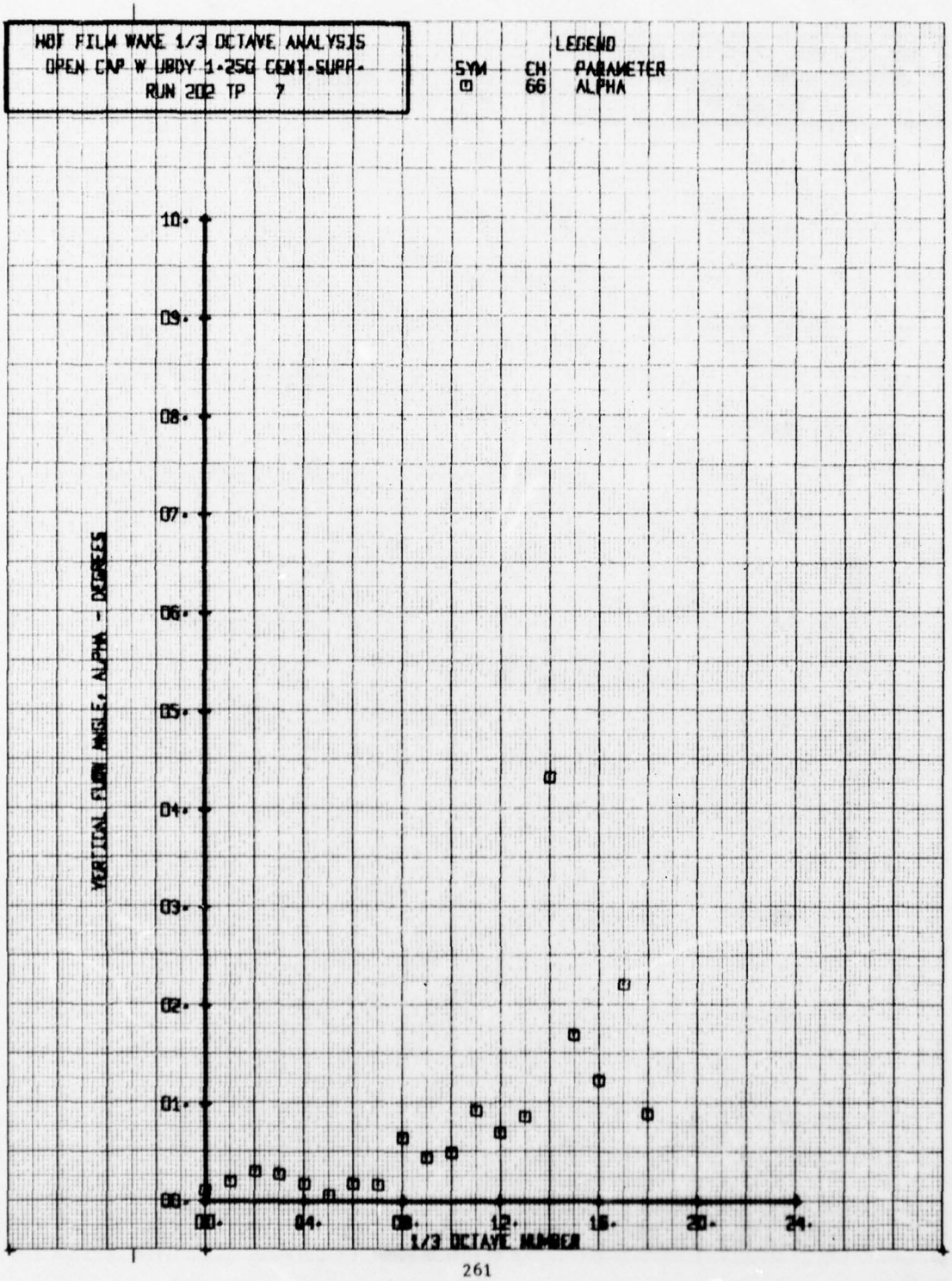

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W LBODY 7-08.4-BB.6L OFFST
RUN 138 TP 6
LEGEND
SYM CM PARAMETER
65 V-DELTA
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1/3 OCTAVE NUMBER

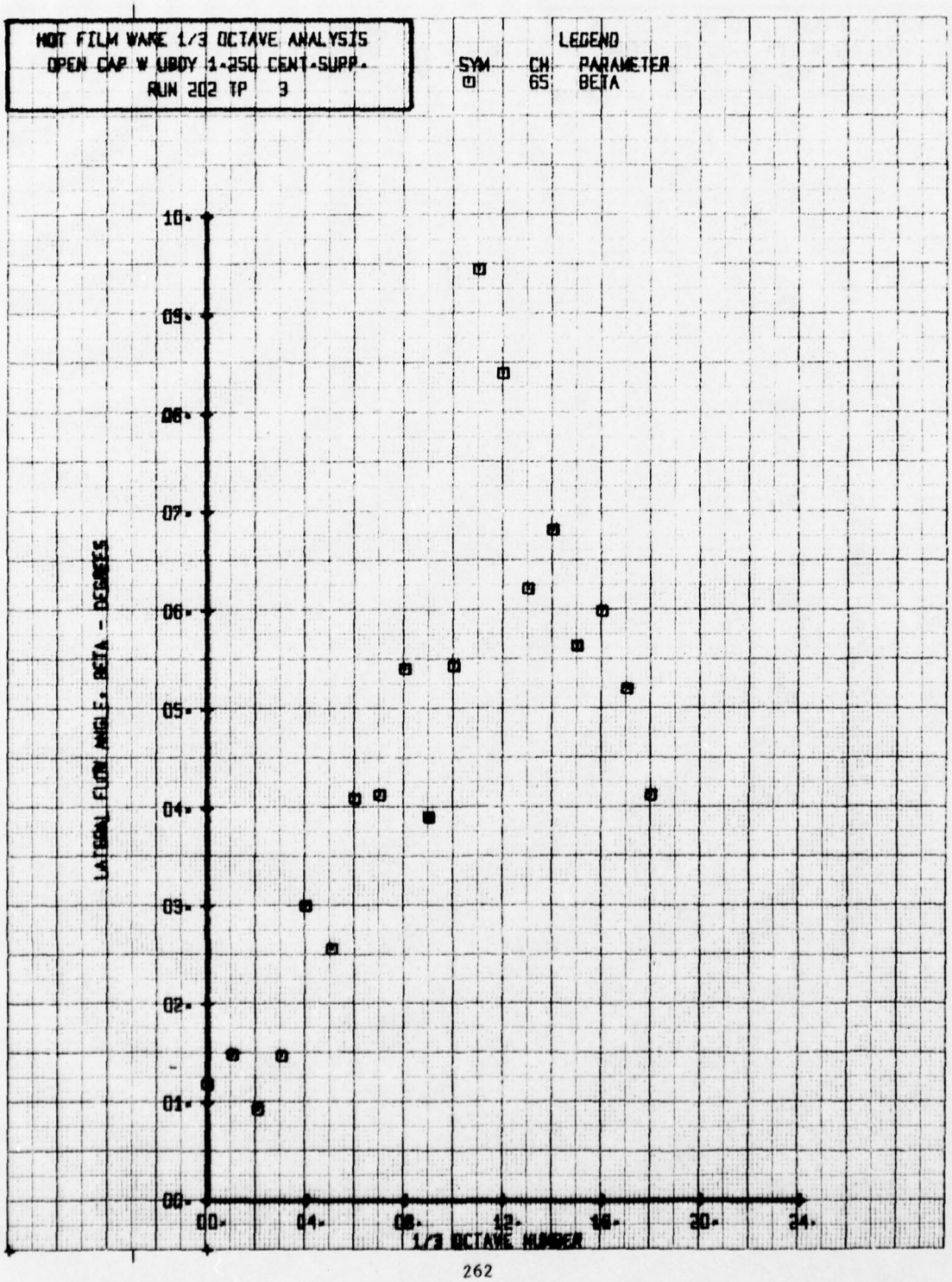

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 1-25Q CENT-SUPP.
RUN 202 TP 8
LEGEND
SYM CH PARAMETER
66 ALPHA
10.
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VERTICAL FLOW ANGLE, ALPHA - DEGREES
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1/3 OCTAVE NUMBER

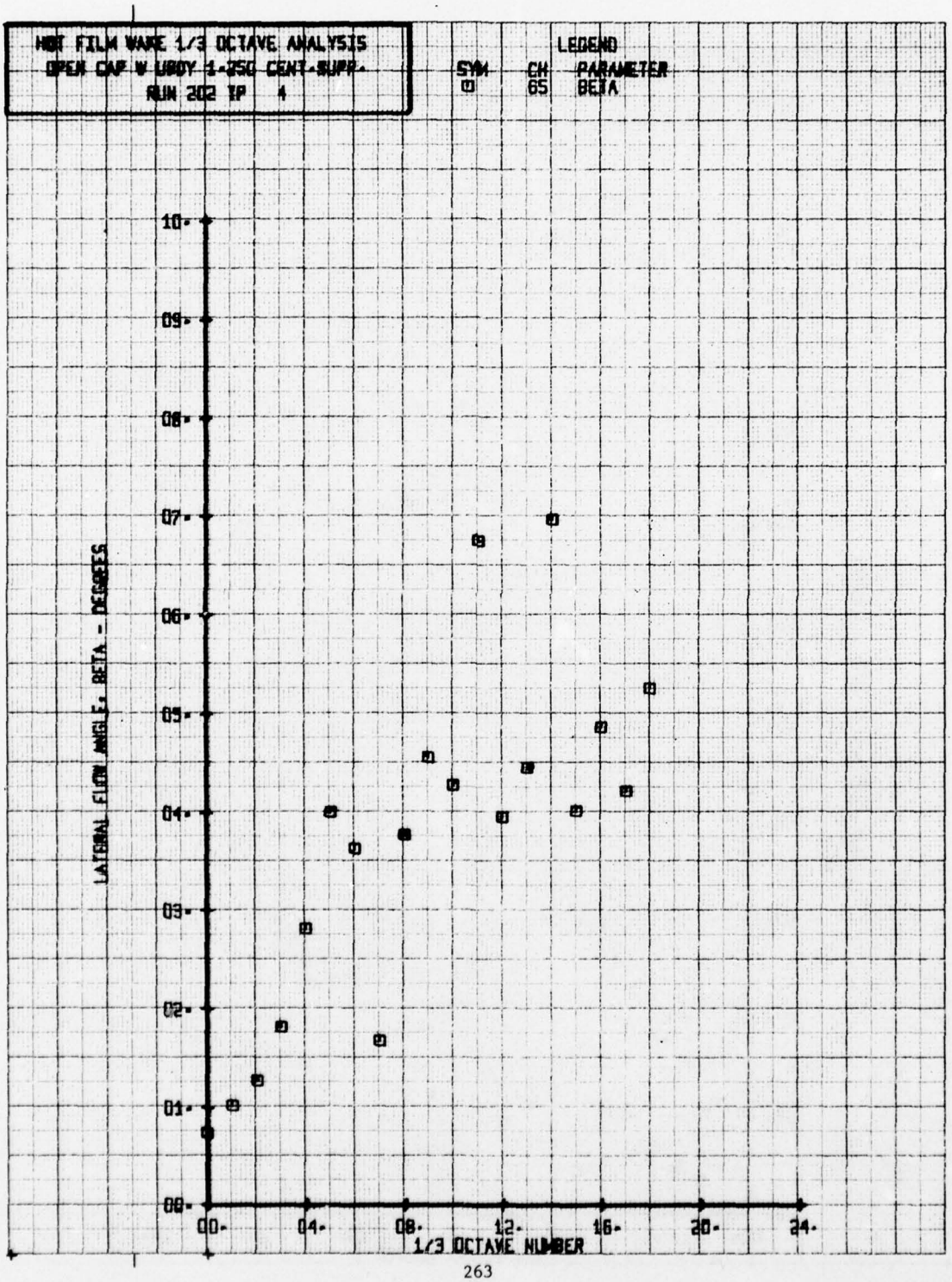

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 1-25G CENT-SUPR-
RUN 202 TP 4
LEGEND
SYM CH PARAMETER
66 ALPHA
10.
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VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

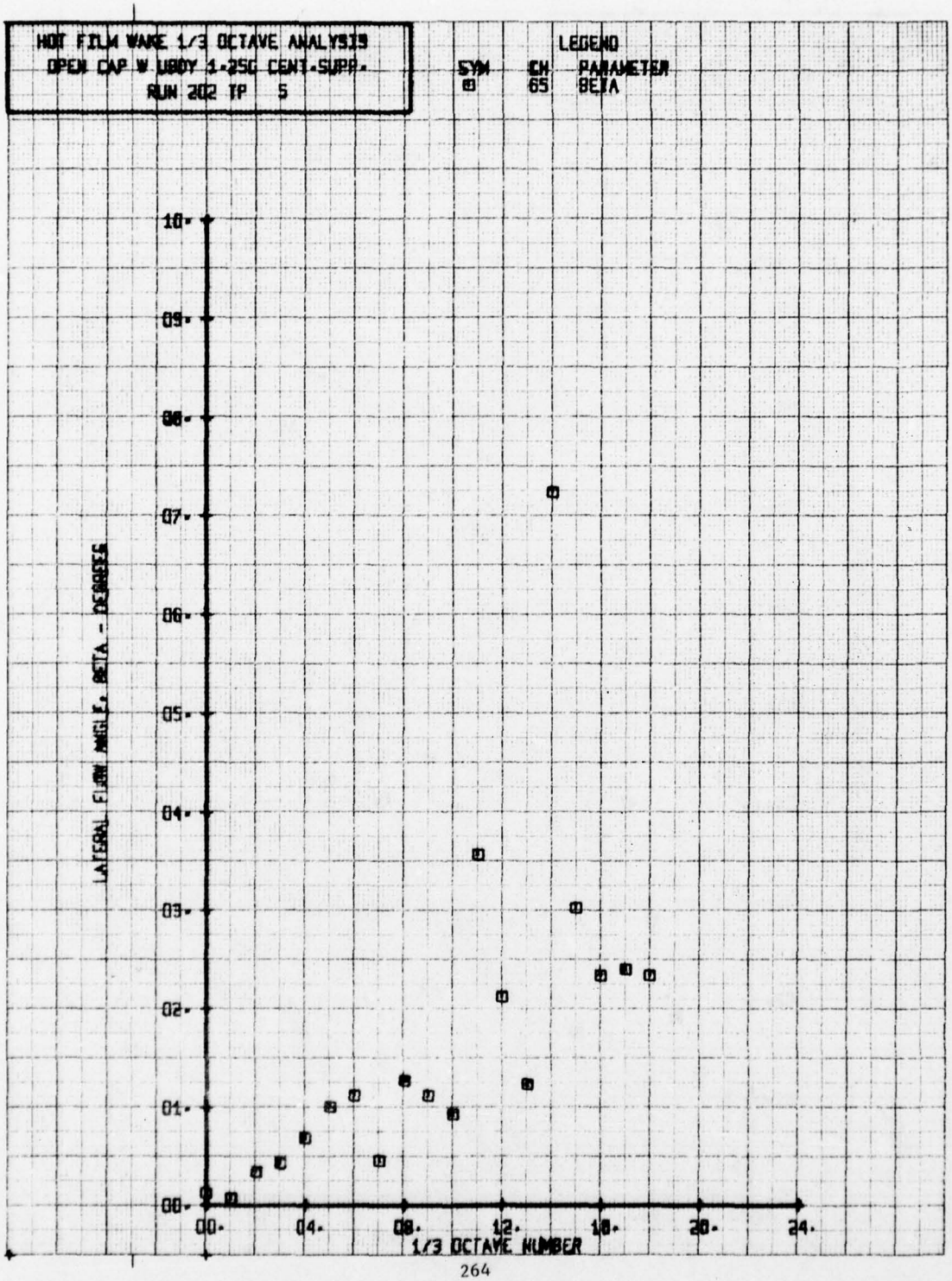

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 1.25G CENT-SUPP.
RUN 202 TP 5
LEGEND
SYM EM PARAMETER
66 ALPHA
10.
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VERTICAL FLOW ANGLE, ALPHA - DEGREES
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1/3 OCTAVE NUMBER

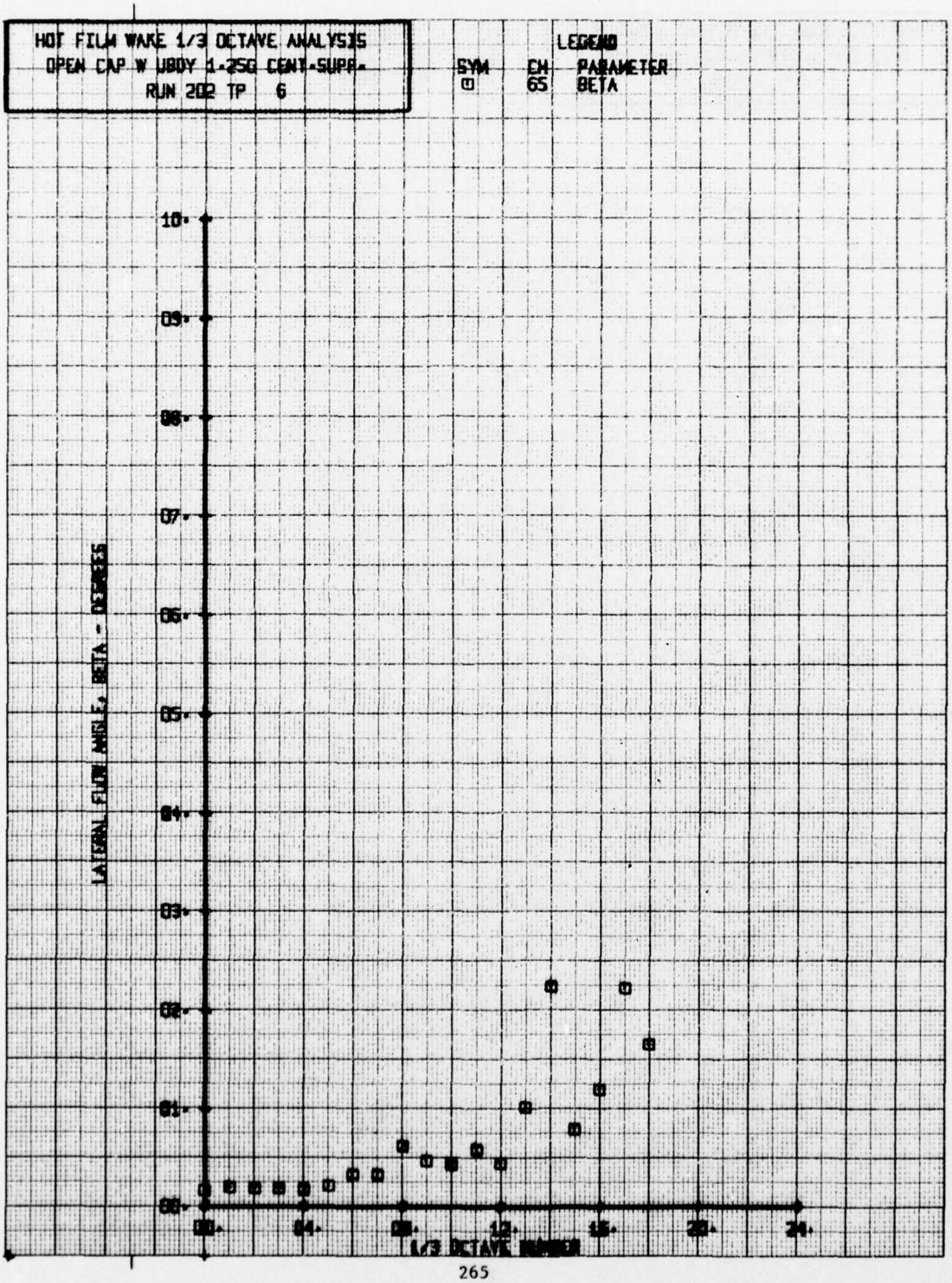

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 1-25G CENT-SUPP.
RUN 202 TP 6
LEGEND
SYM CH PARAMETER
66 ALPHA
10.
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VERTICAL FLOW ANGLE, ALPHA - DEGREES
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1/3 OCTAVE NUMBER

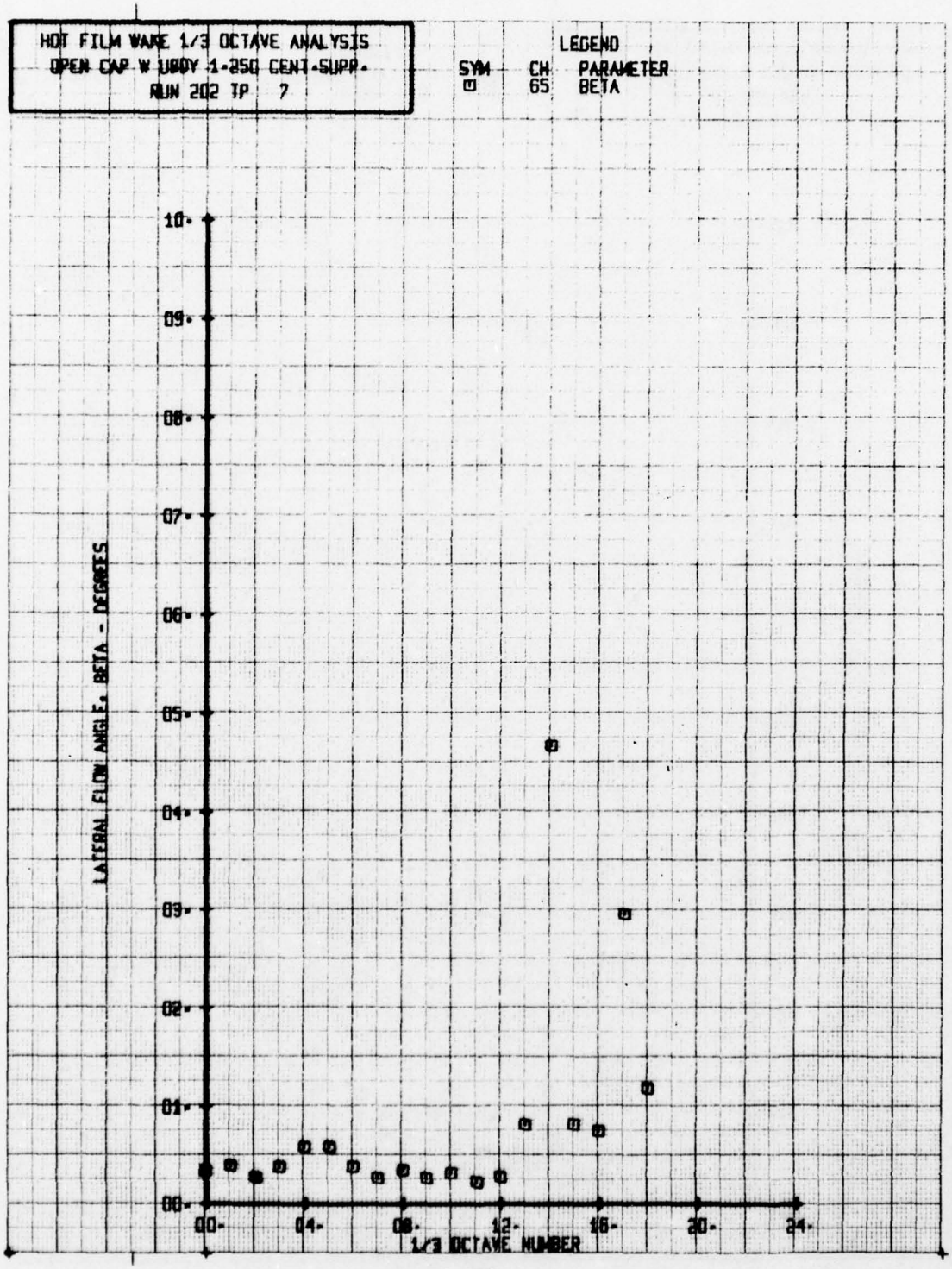

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBDY 1-25D CENT-SUPP-
RUN 202 TP 7
LEGEND
SYM CH PARAMETER
66 ALPHA
10.
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VERTICAL FLOW ANGLE, ALPHA - DEGREES
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24.
1/3 OCTAVE NUMBER

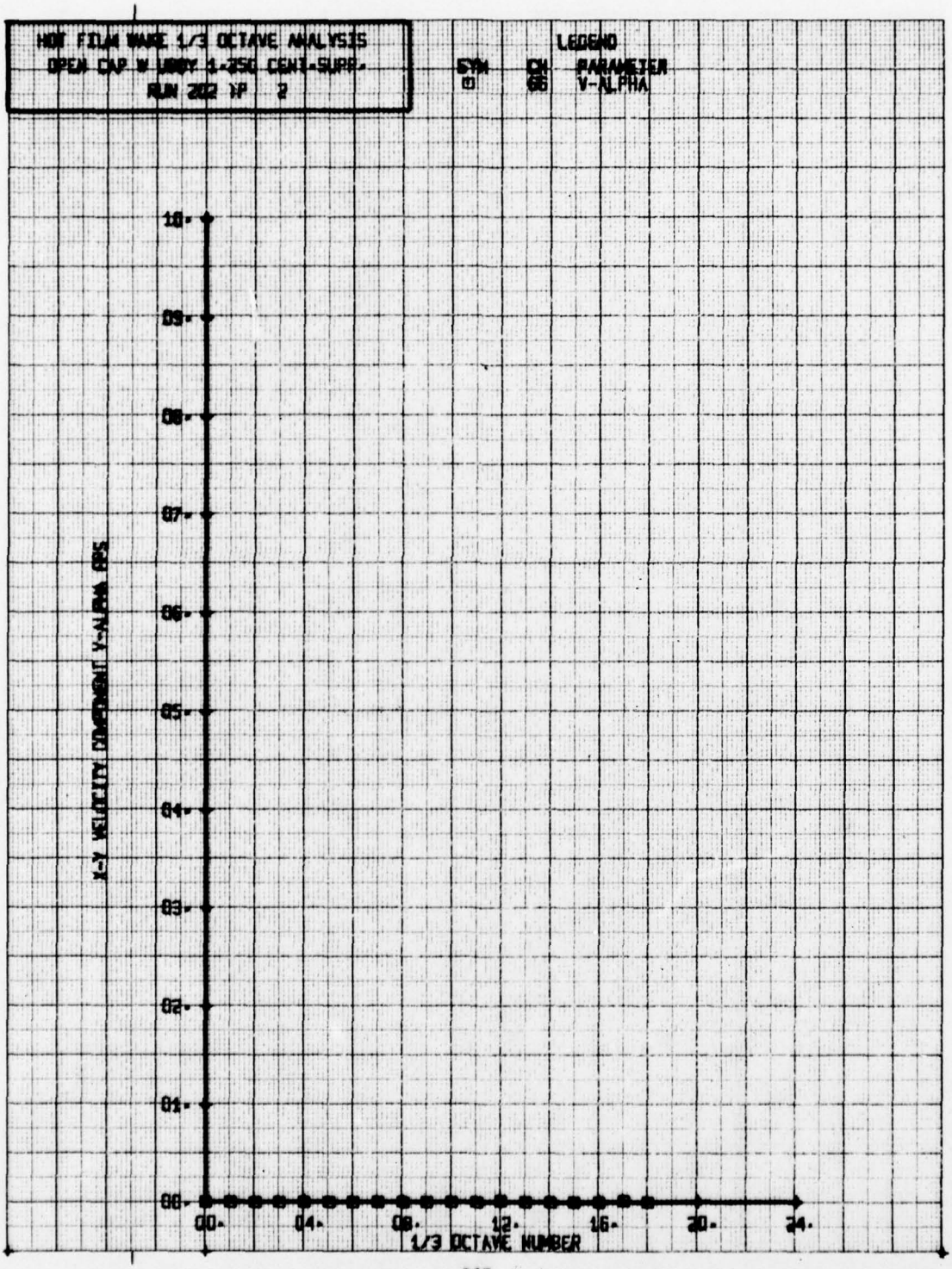

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 1-25D CENT-SUPP.
RUN 202 TP 3
LEGEND
SYM CH PARAMETER
65 BETA
10.
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LATERAL FLOW ANGLE, BETA - DEGREES
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24.
1/3 OCTAVE NUMBER

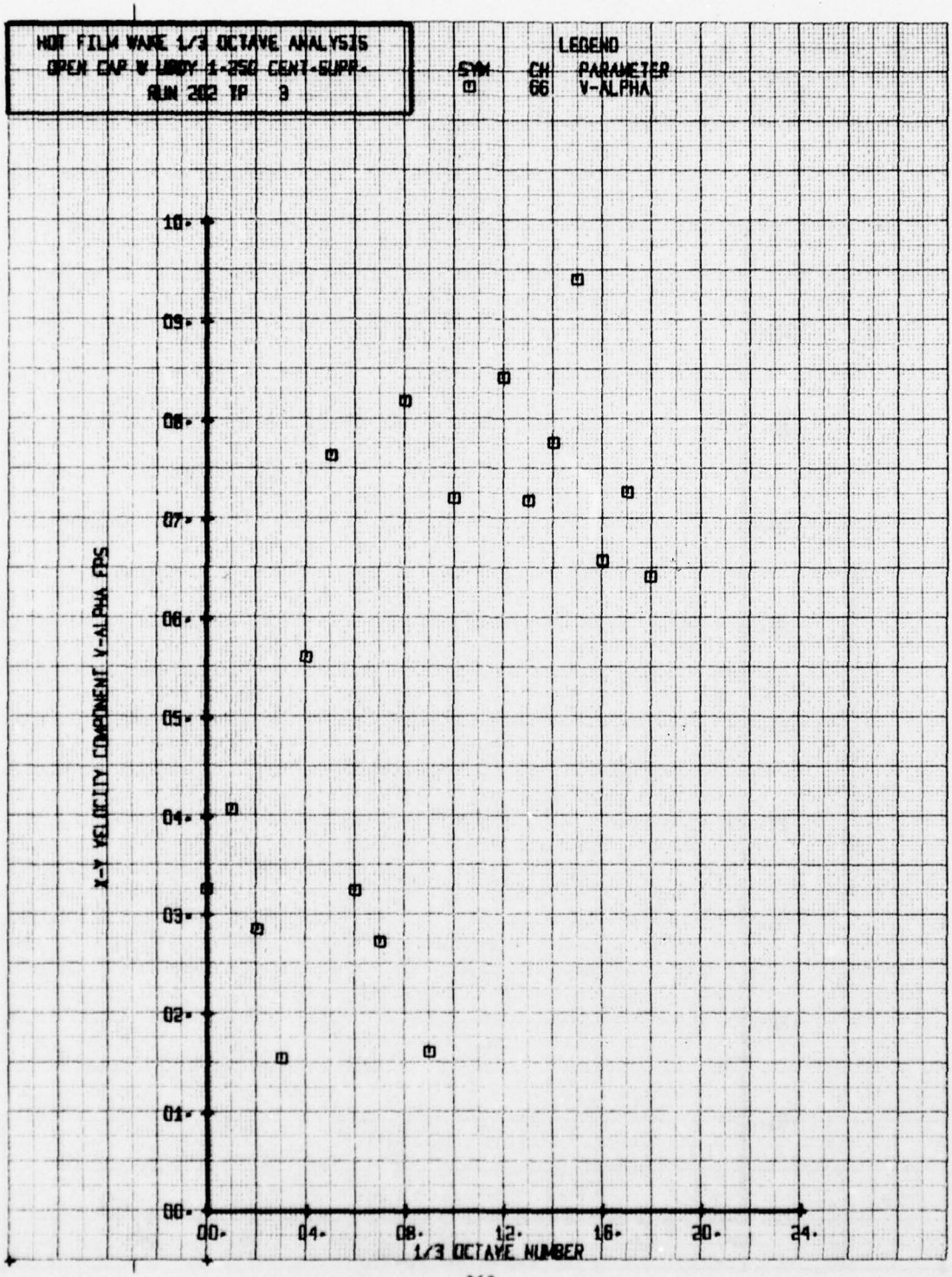

HOT FILM WARE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 1-25Q CENT-SUPP-
RUN 202 TP 4
LEGEND
SYM CH PARAMETER
65 BETA
10-
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LATERAL FLOW ANGLE, BETA - DEGREES
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1/3 OCTAVE NUMBER

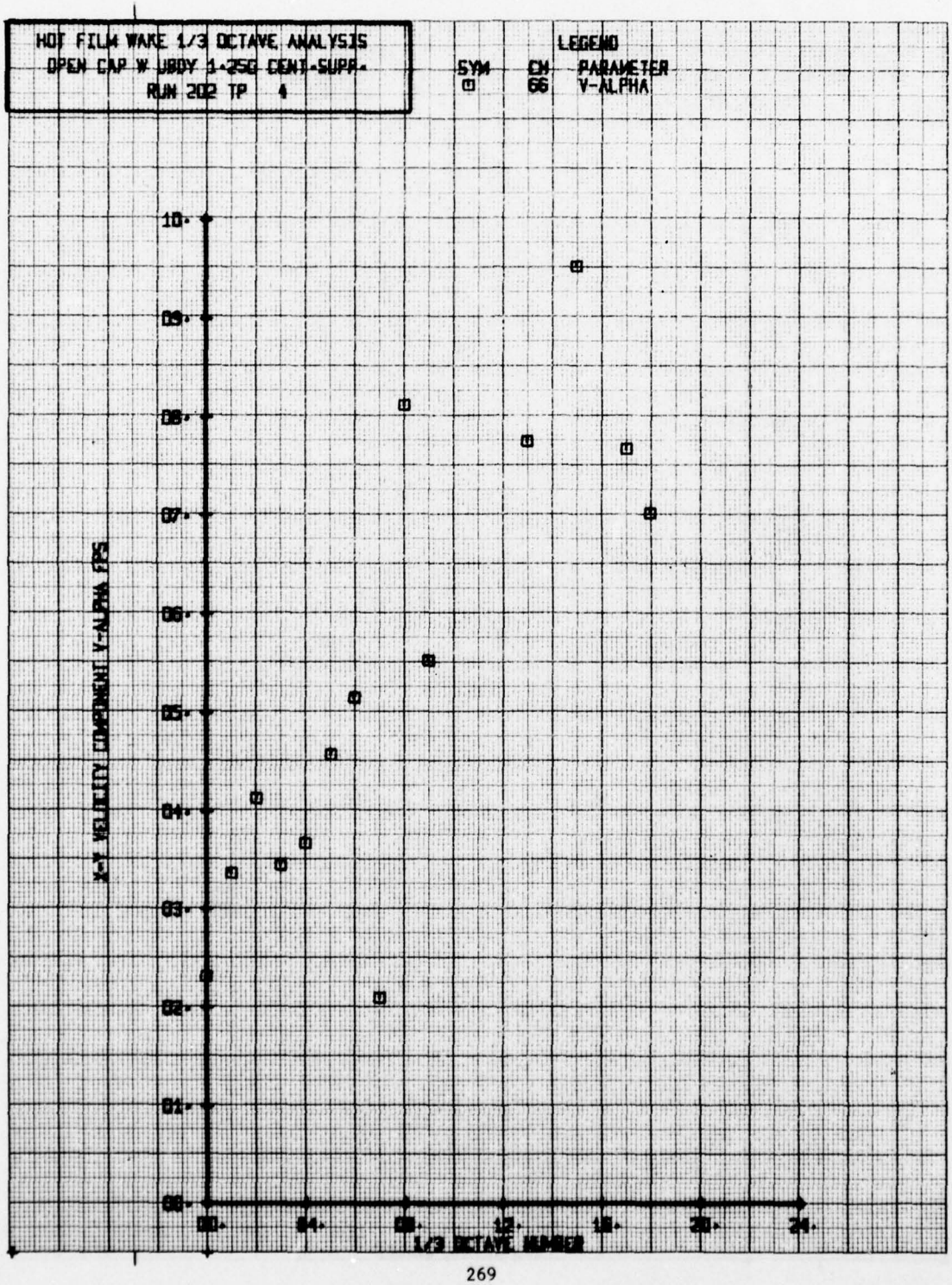

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 1.25C CENT.SUPP.
RUN 202 TP 5
LEGEND
SYM CH PARAMETER
65 BETA
10.
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LATERAL FLOW ANGLE, BETA - DEGREES
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24.
1/3 OCTAVE NUMBER

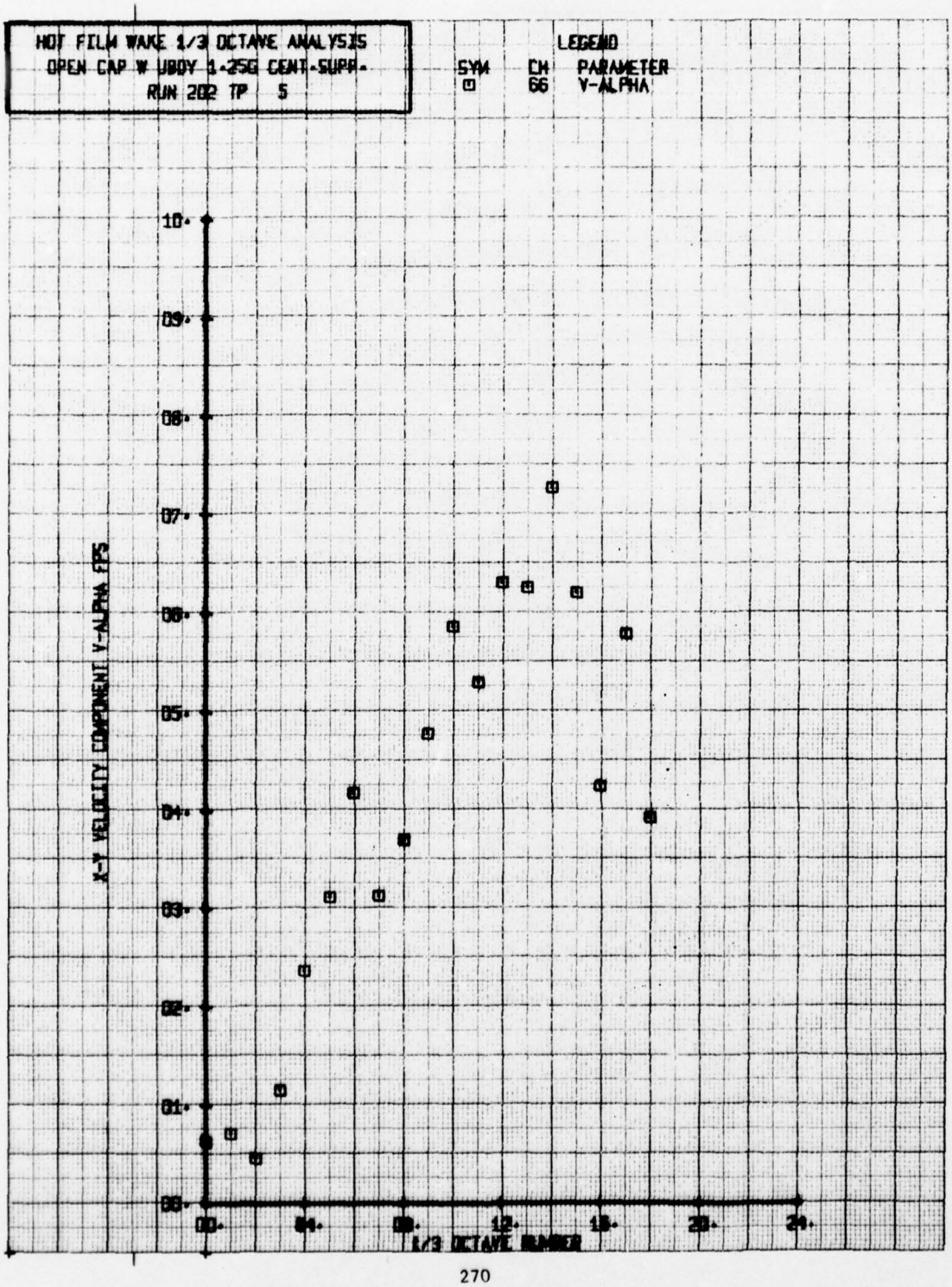

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBDY 1.25G CENT-SUPP-
RUN 202 TP 6
LEGEND
SYM CH PARAMETER
65 BETA
10.
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LATERAL FLOW ANGLE, BETA - DEGREES
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20.
24.
1/3 OCTAVE

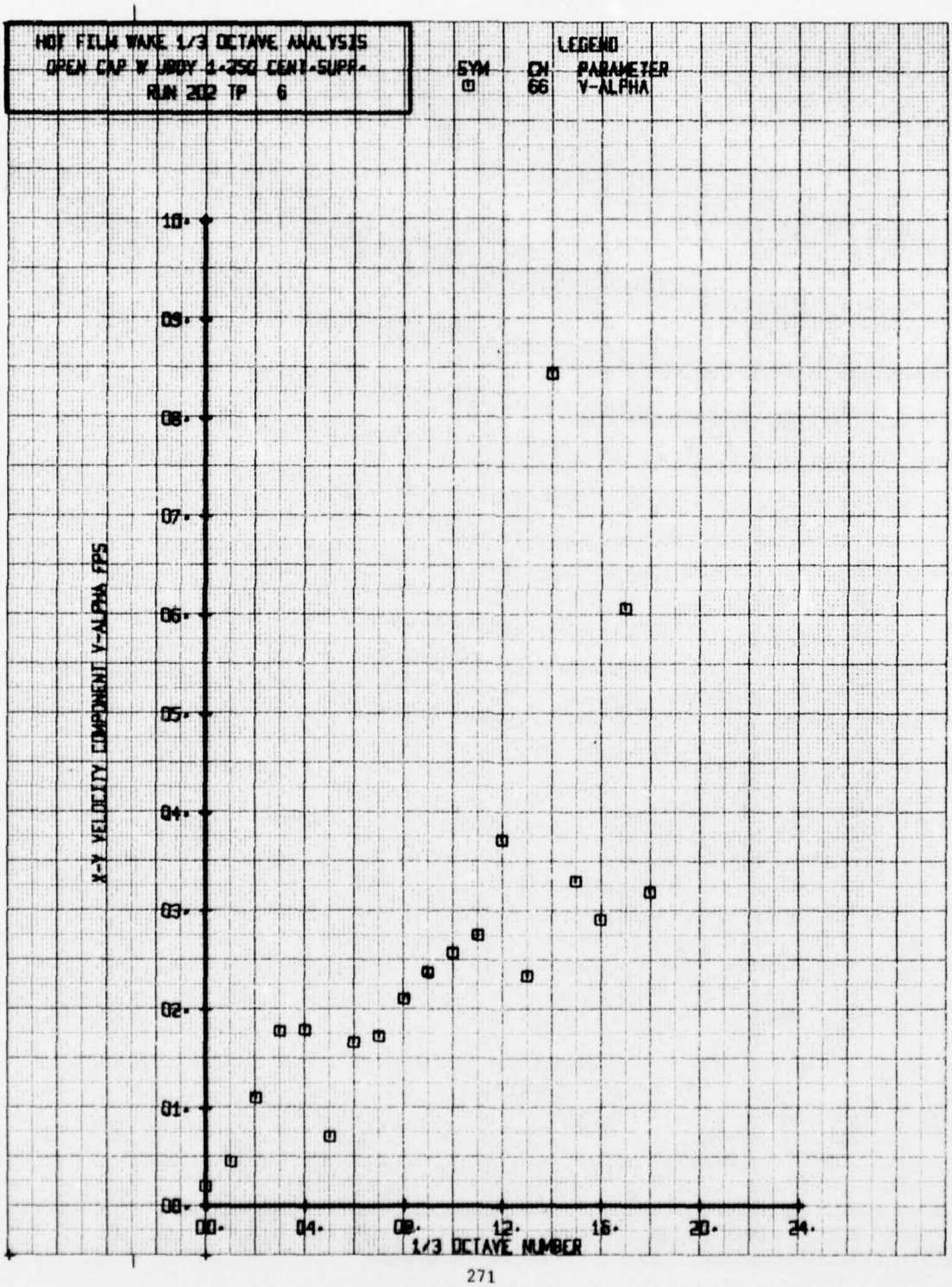

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBDY 1-250 CENT-SUPP.
RUN 202 TP 7
LEGEND
SYM CH PARAMETER
65 BETA
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LATERAL FLOW ANGLE, BETA - DEGREES
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24.
1/3 OCTAVE NUMBER

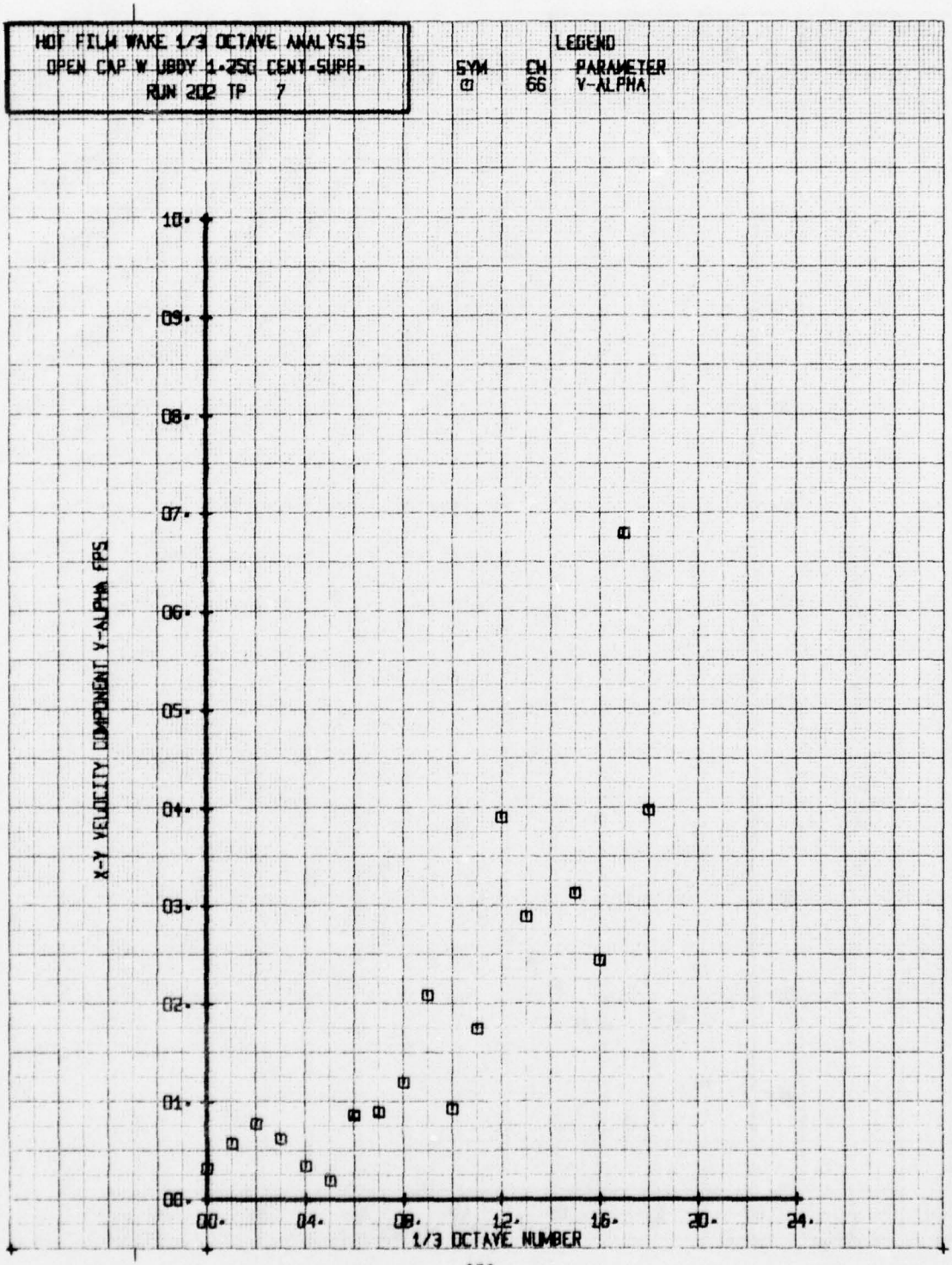

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W ABBY 1.25C CENT-SUPP.
RUN 202 YP 2
LEGEND
SYM CH PARAMETER
05 V-ALPHA
10.
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X-V VELOCITY COMPONENT V-ALPHA 05
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1/3 OCTAVE NUMBER

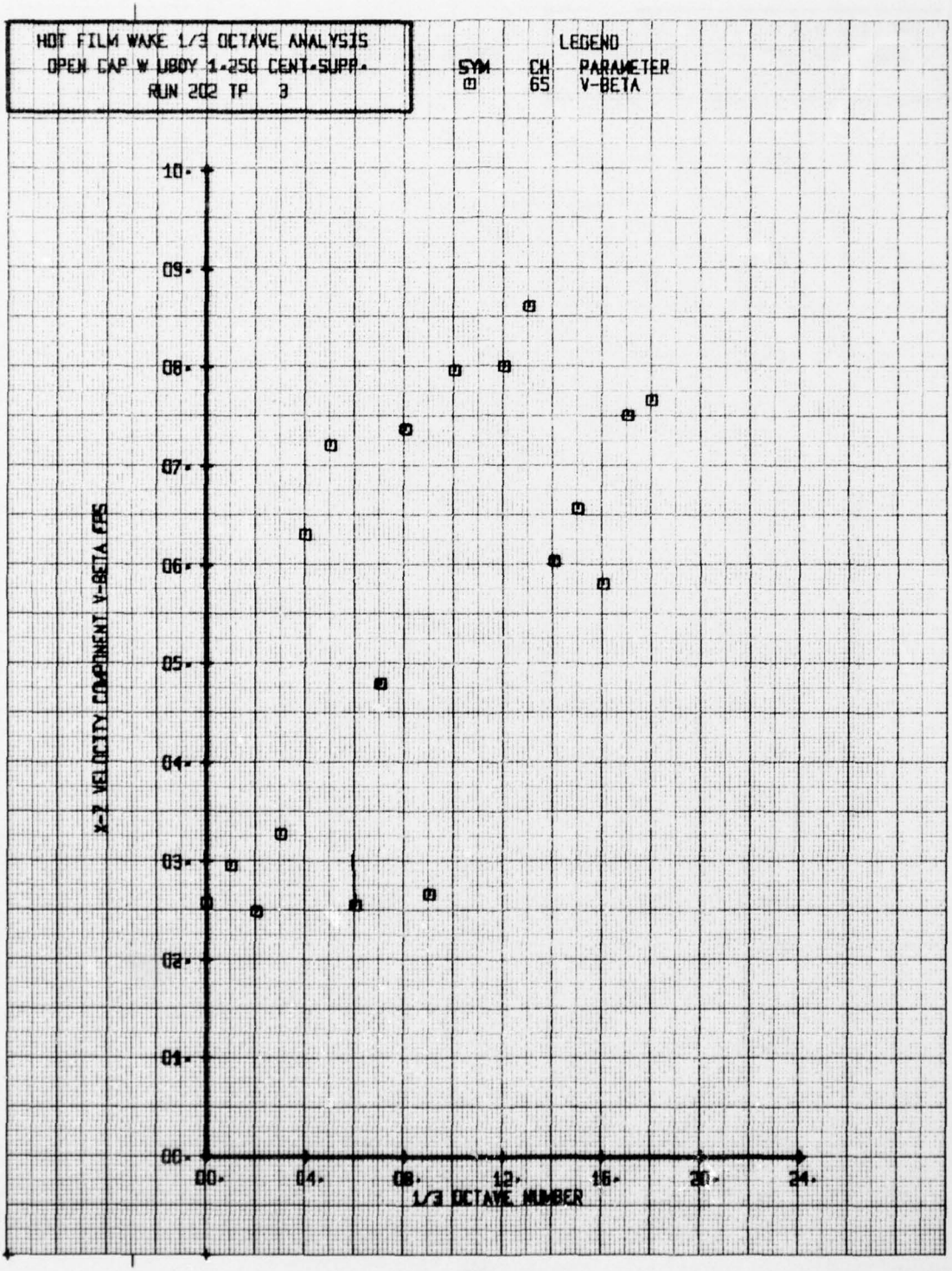

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W BODY 1-250 CENT-SUPR.
RUN 202 TP 8
LEGEND
SYM CH PARAMETER
66 V-ALPHA
10.
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X-Y VELOCITY COMPONENT Y-ALPHA FPS
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1/3 OCTAVE NUMBER

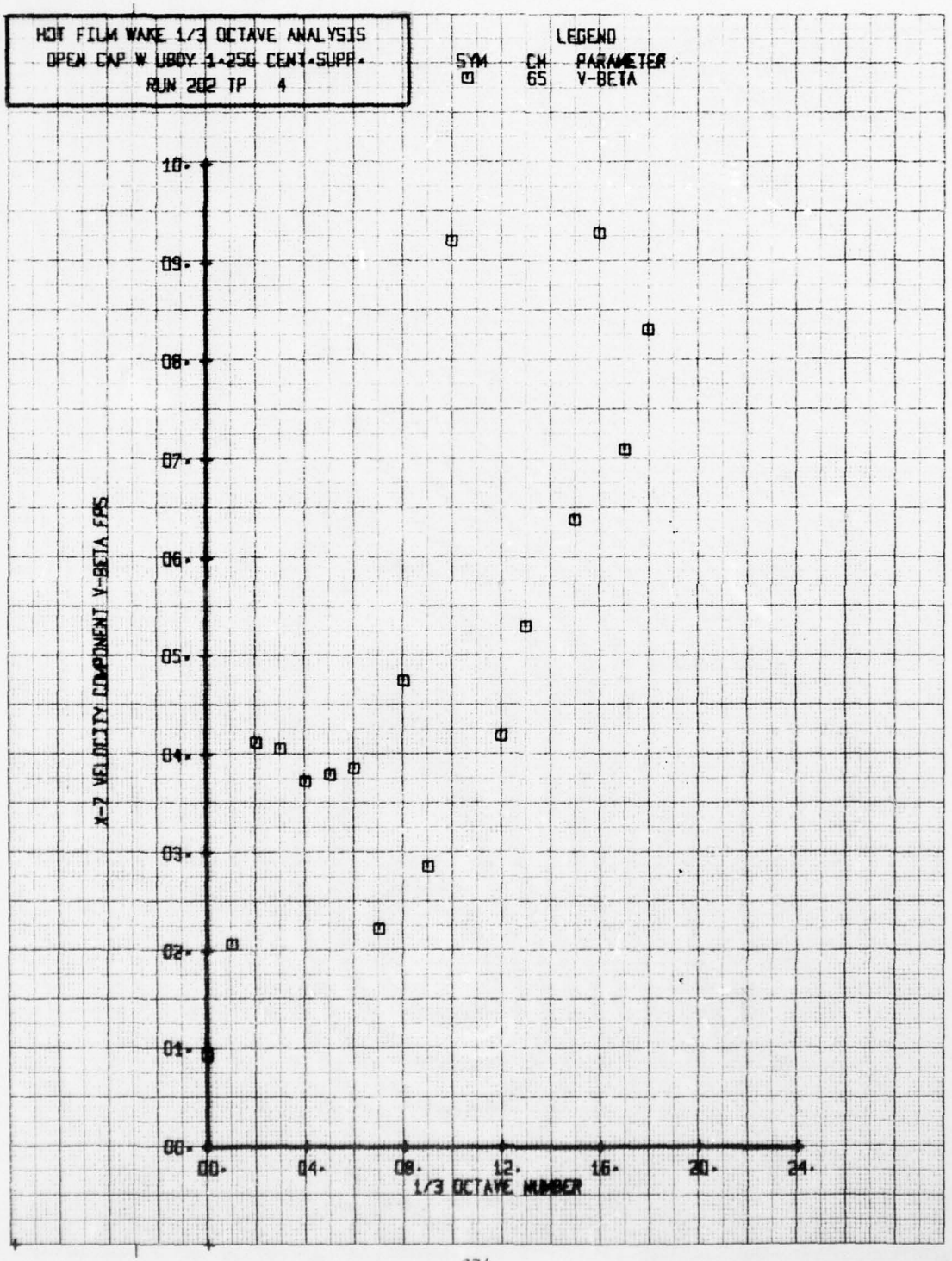

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBDY 1.25D CENT-SUPP.
RUN 202 TP 4
LEGEND
SYM CM PARAMETER
66 V-ALPHA
10.
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1/3 OCTAVE NUMBER

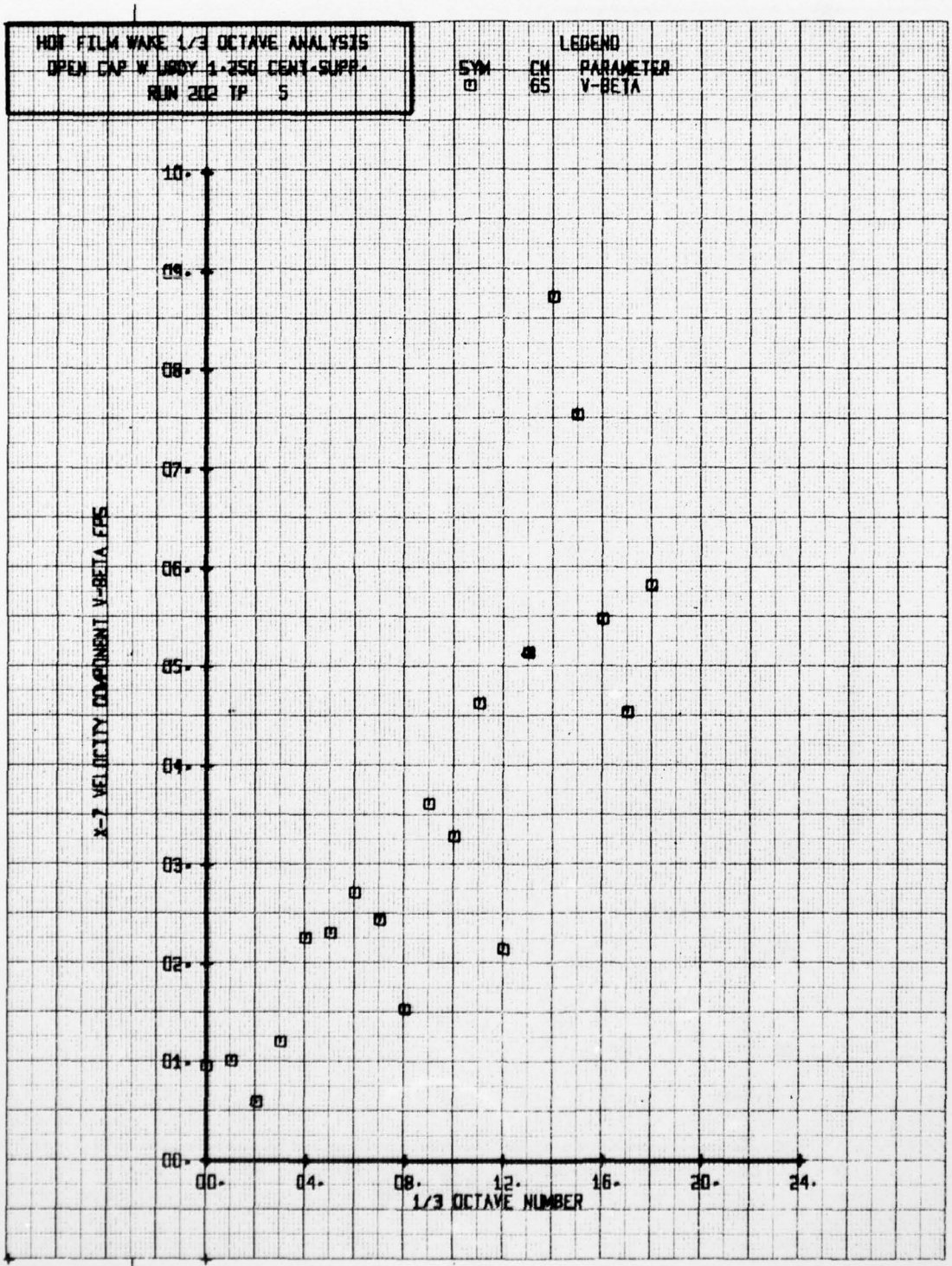

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 1.25G CENT-SUPP.
RUN 202 TP 5
LEGEND
SYM CH PARAMETER
66 V-ALPHA
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X-Y VELOCITY COMPONENT V-ALPHA FPS
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1/3 OCTAVE NUMBER

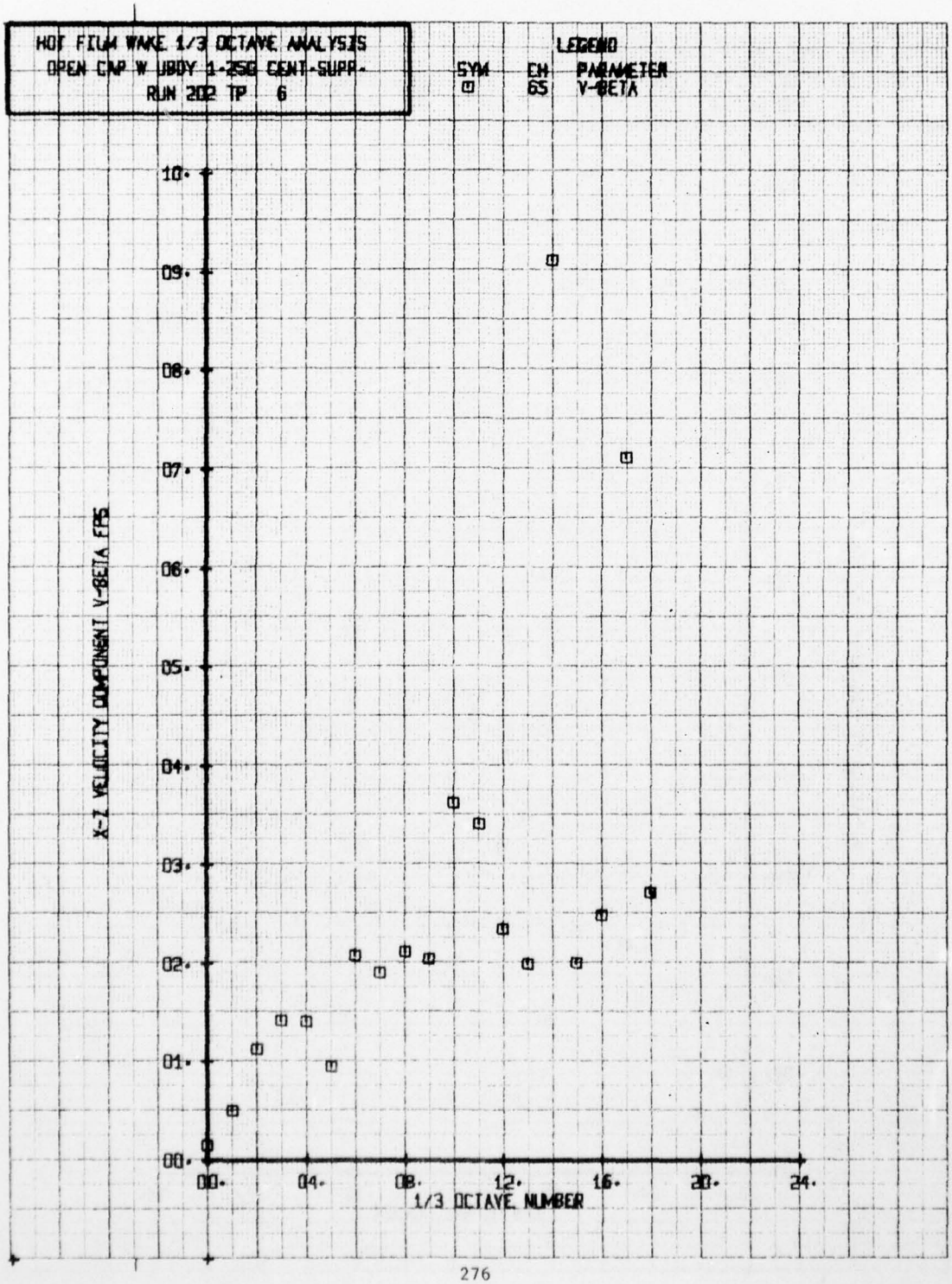

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 1-25Q CENT-SUPR-
RUN 202 TP 6
LEGEND
SYM CH PARAMETER
66 V-ALPHA
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X-X VELOCITY COMPONENT V-ALPHA FPS
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1/3 OCTAVE NUMBER

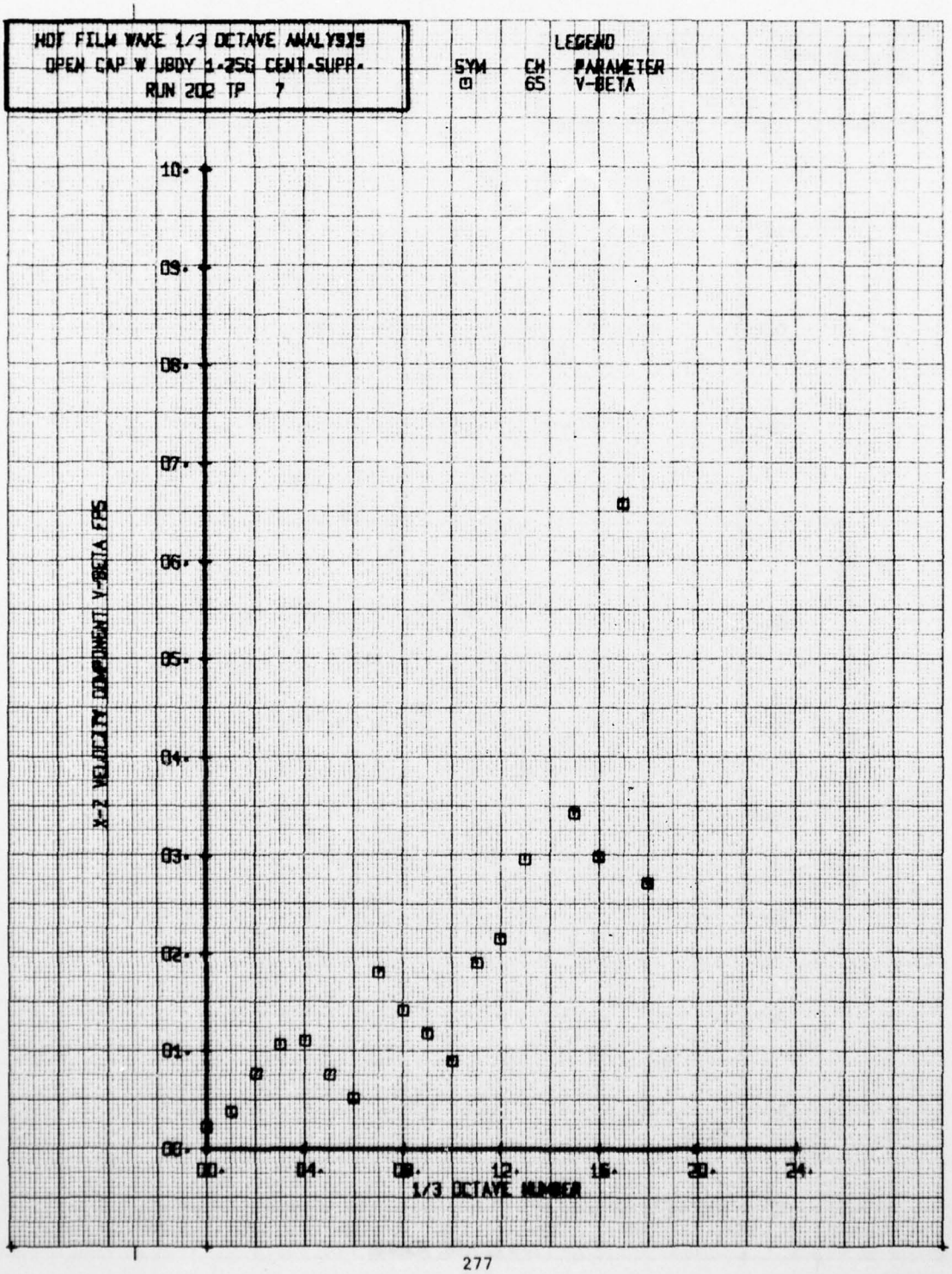

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 1.25C CENT-SUPP.
RUN 202 TP 7
LEGEND
SYM CH PARAMETER
66 Y-ALPHA
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X-Y VELOCITY COMPONENT Y-ALPHA FPS
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1/3 OCTAVE NUMBER

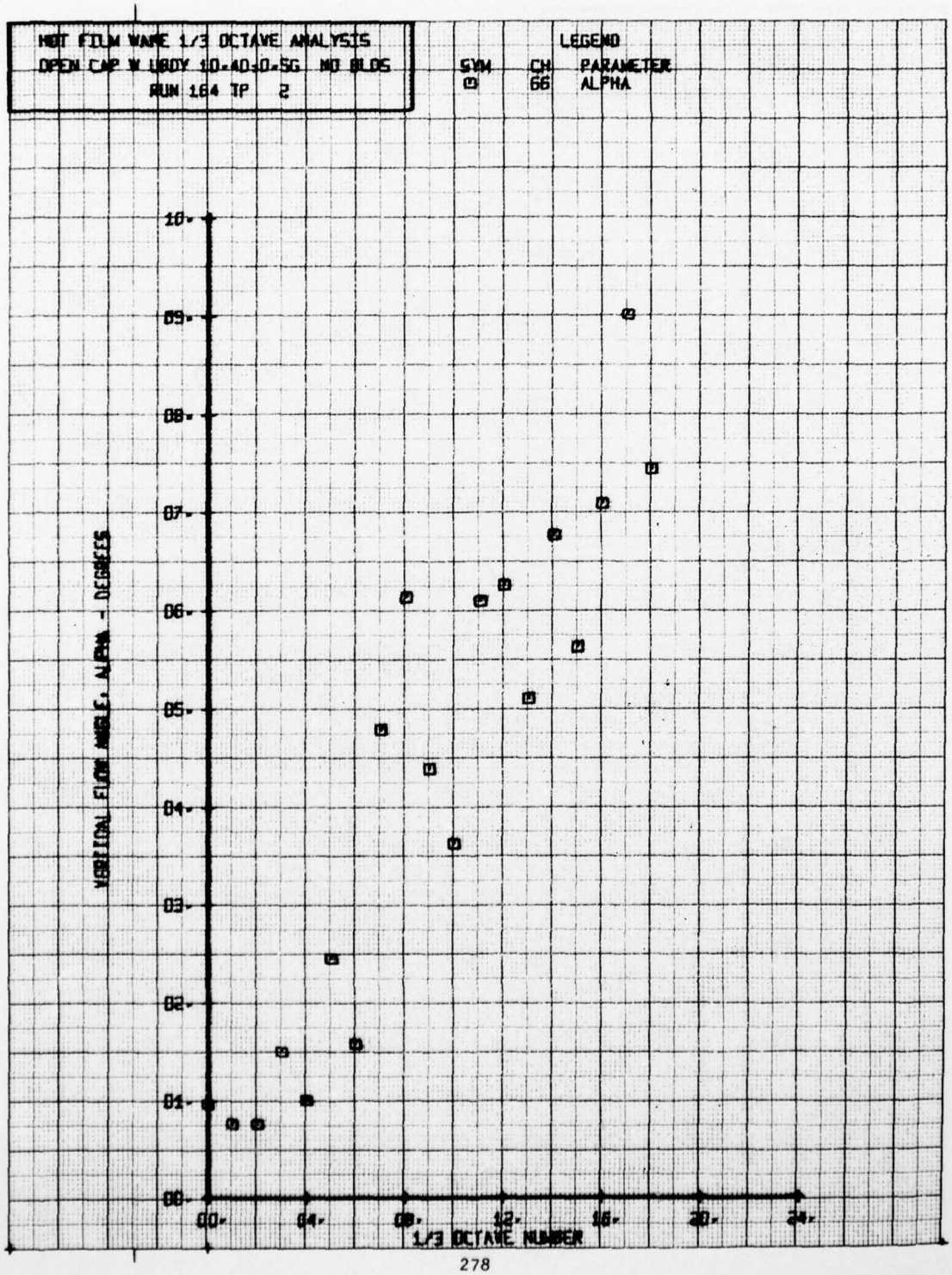

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 1-25Q CENT-SUPP.
RUN 202 TP 3
LEGEND
SYM CH PARAMETER
65 V-BETA
10.
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1/3 OCTAVE NUMBER
SEC VELOCITY COMPONENT V-BETA CFS

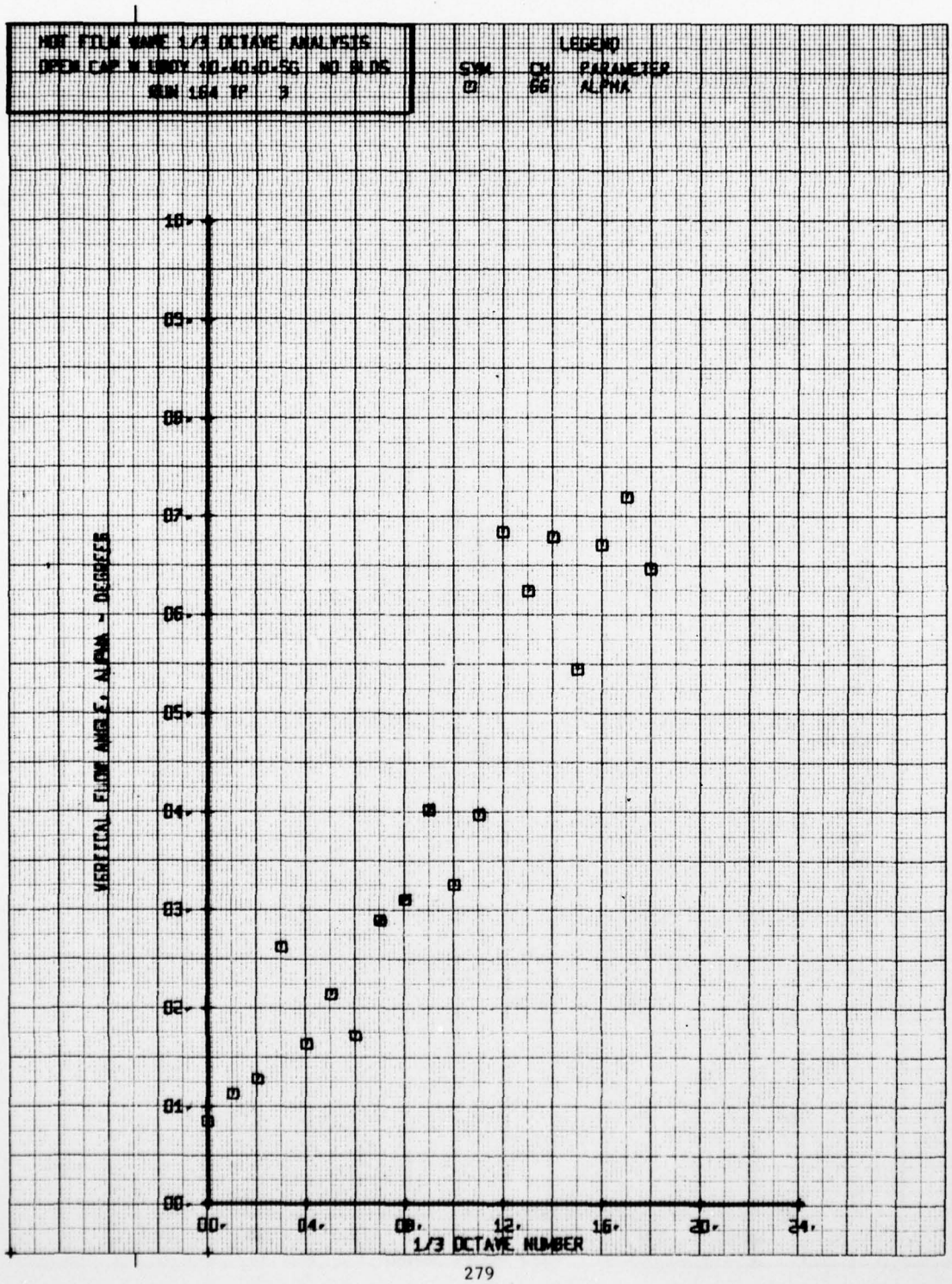

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 1.25G CENT.SUPP.
RUN 202 TP 4
LEGEND
SYM CH PARAMETER
65 V-BETA
10.
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X-Z VELOCITY COMPONENT V-BETA FPS
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1/3 OCTAVE NUMBER

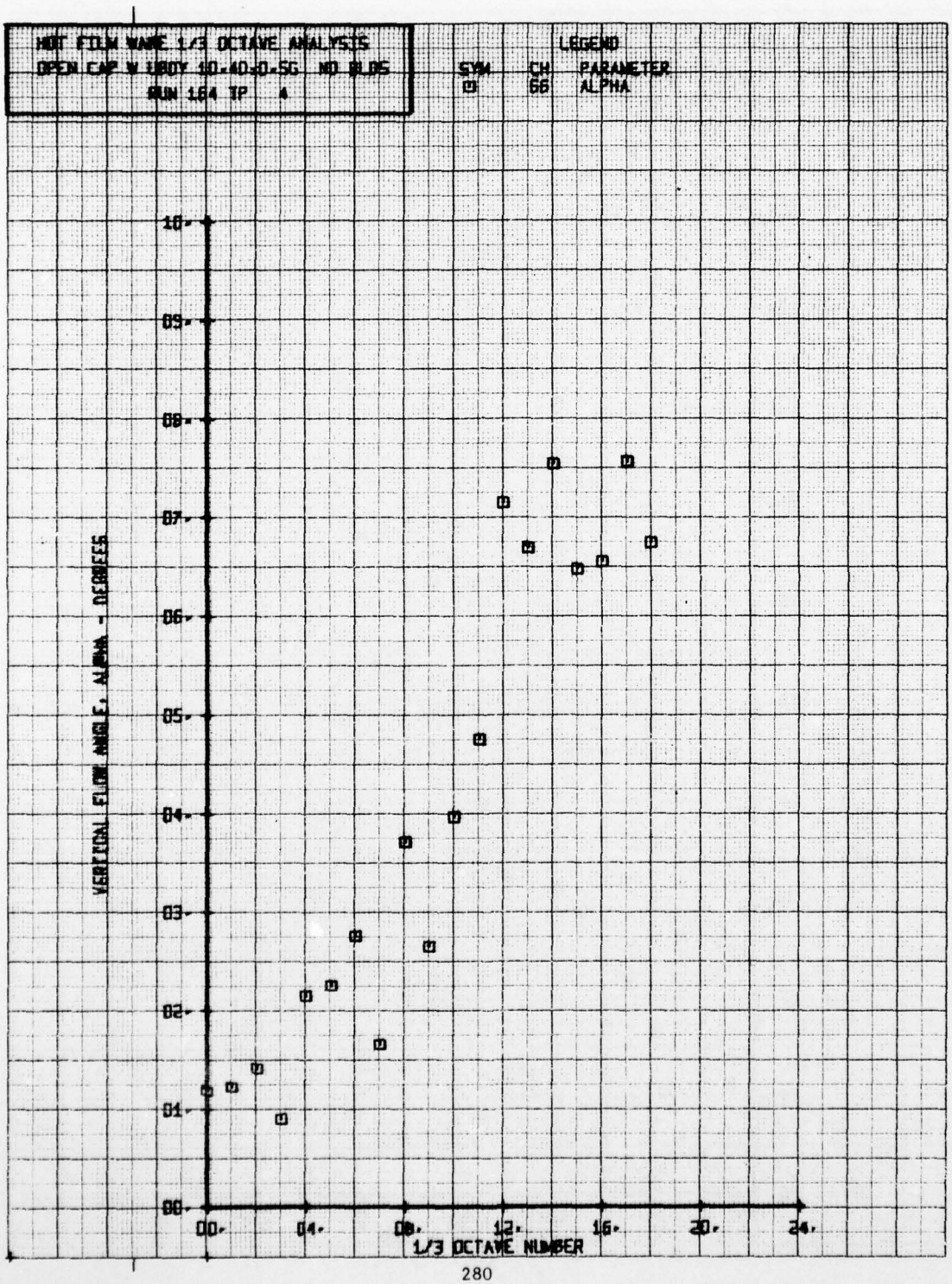

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UNDY 1-25Q CENT-SUPP-
RUN 202 TP 5
LEGEND
SYM CH PARAMETER
65 V-BETA
10-
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X-Z VELOCITY COMPONENT V-BETA/FPS
00- 04- 08- 12- 16- 20- 24-
1/3 OCTAVE NUMBER

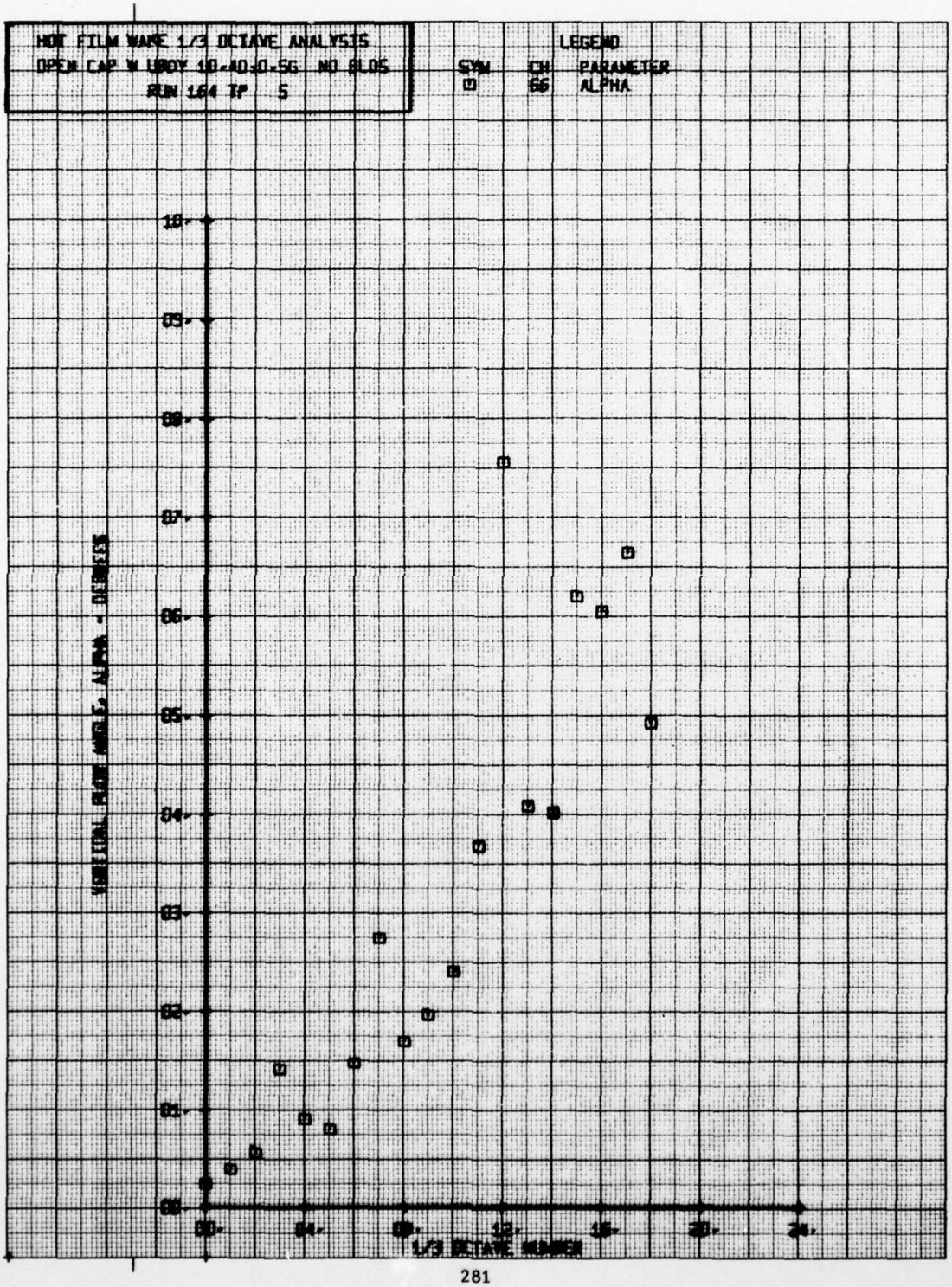

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CNP W UBDY 1-25G CENT-SUPP-
RUN 202 TP 6
LEGEND
SYM CH PARAMETER
65 V-BETA
X-Z VELOCITY COMPONENT V-BETA FPS
10.
09.
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20.
24.
1/3 OCTAVE NUMBER

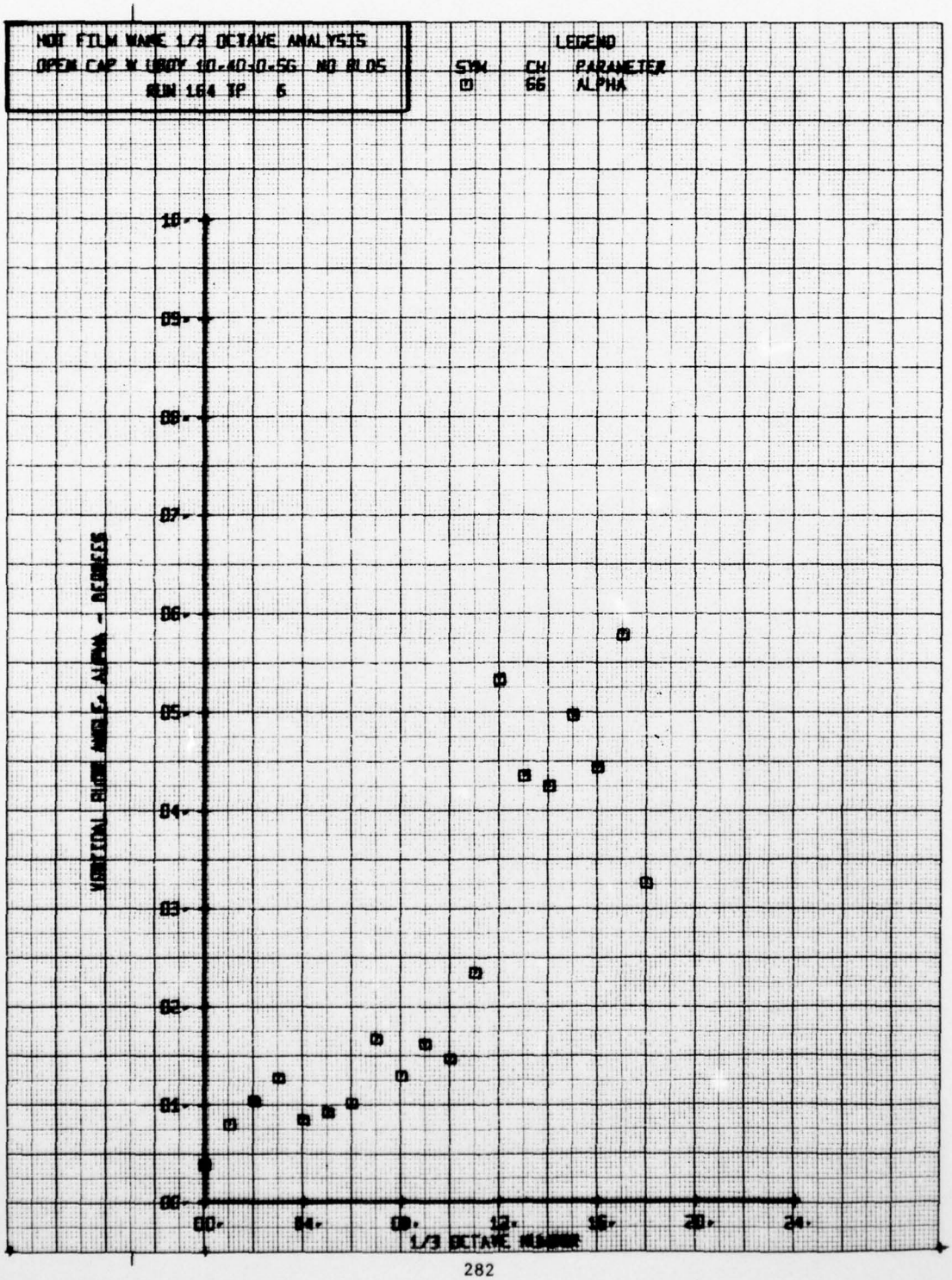

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 1.25G CENT.SUPP.
RUN 202 TP 7
LEGEND
SYM CH PARAMETER
65 V-BETA
X-2 VELOCITY COMPONENT V-BETA FPS
1/3 OCTAVE NUMBER
10.
09.
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16.
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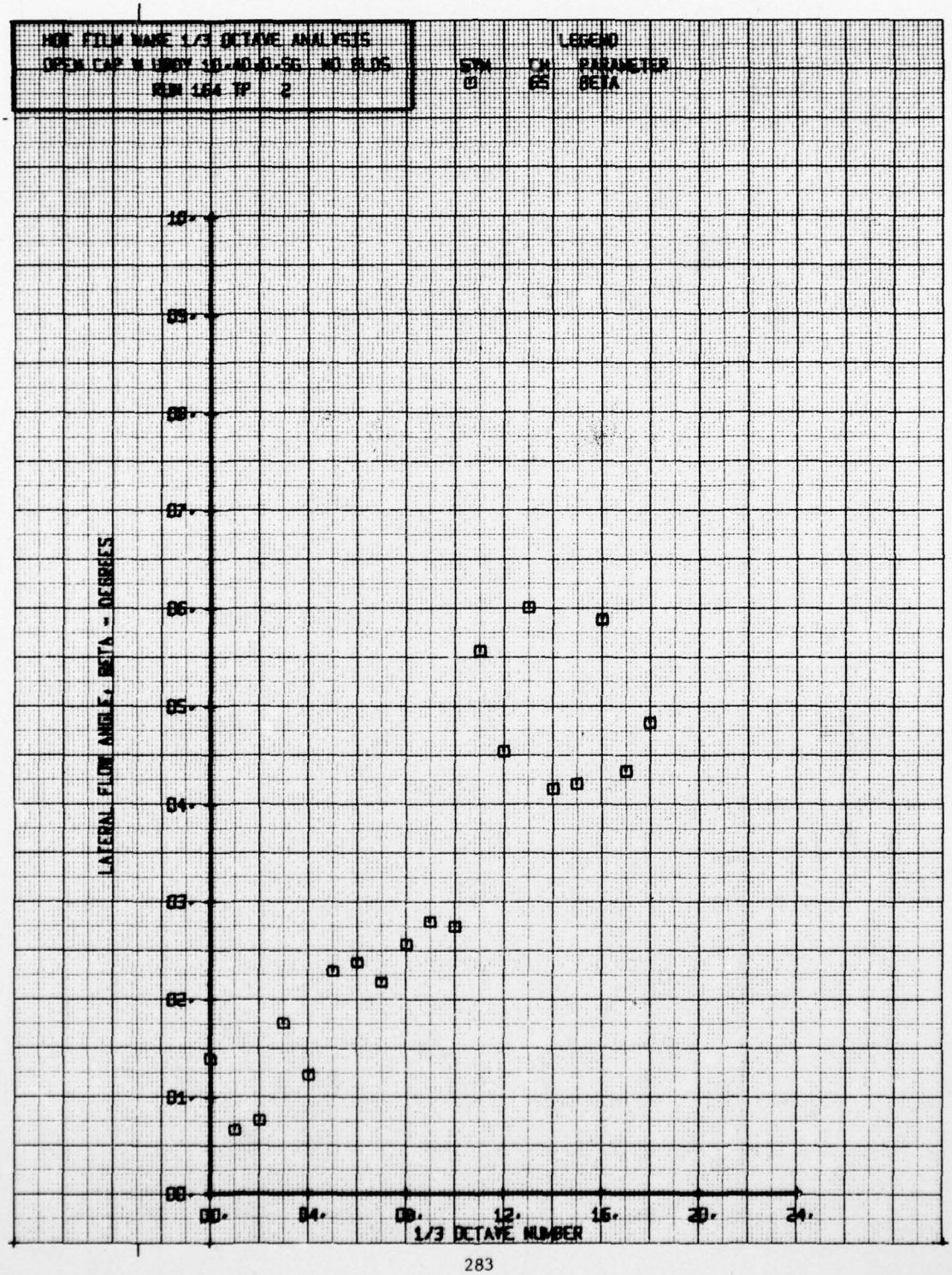

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W USOY 10-40-0-5G NO BLDS
RUN 164 TP 2
LEGEND
SYM CH PARAMETER
66 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER
10
09
08
07
06
05
04
03
02
01
00
00
04
08
12
16
20
24

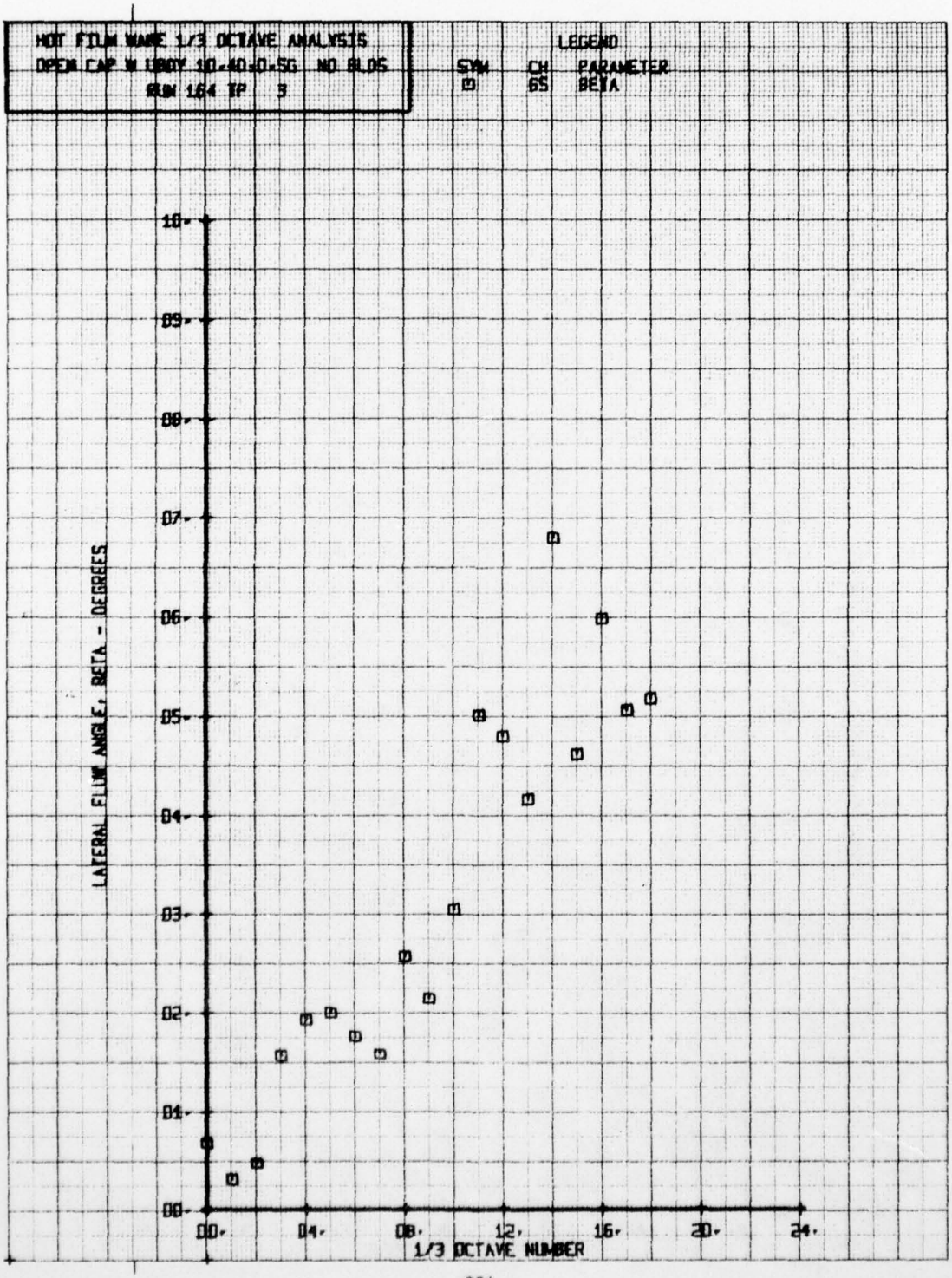

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 10-40-0-SG NO BLDG
RUN 164 TP 3
LEGEND
SYM CH PARAMETER
GG ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER
00.
04.
08.
12.
16.
20.
24.

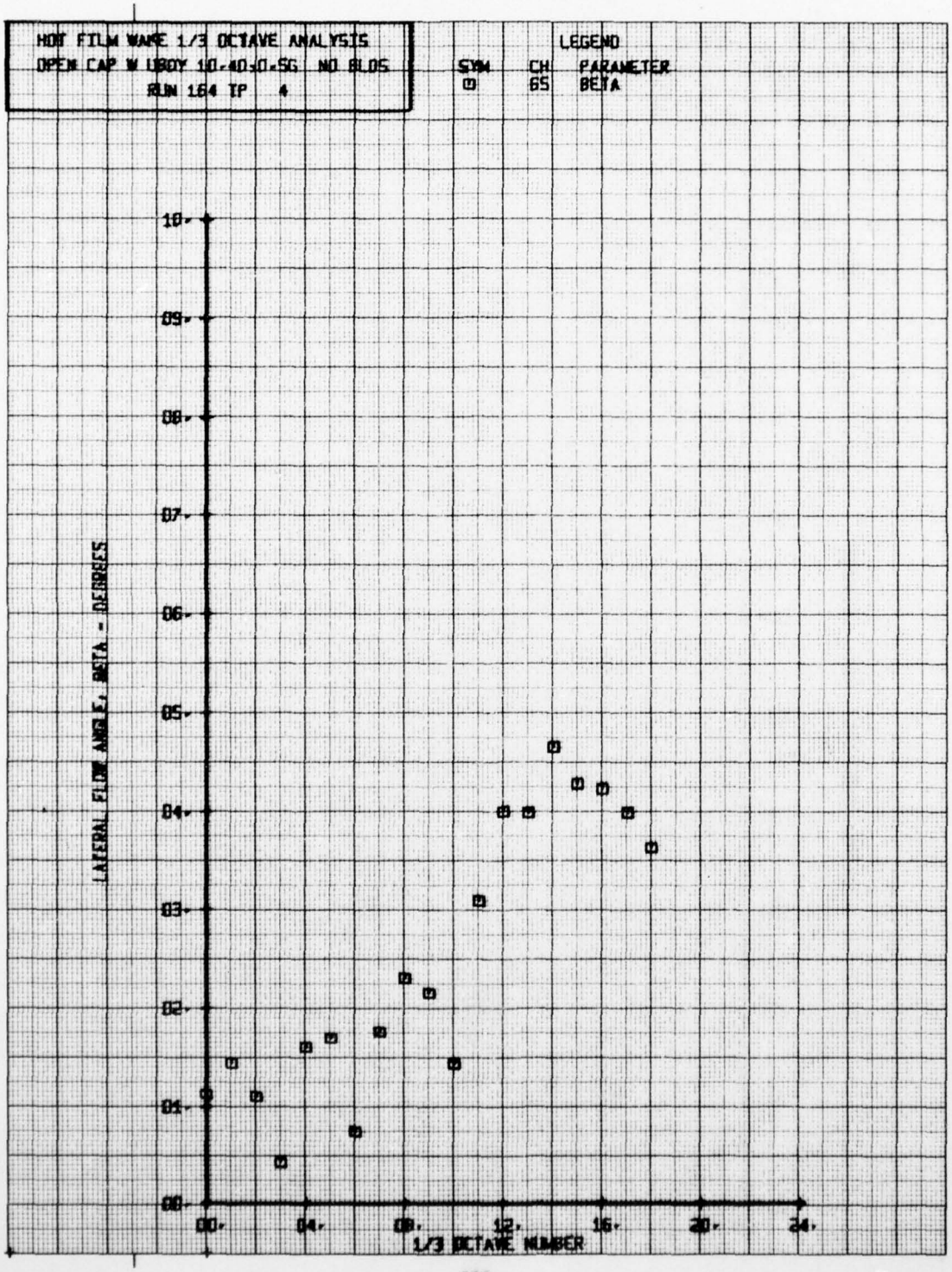

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 10-40-0-SG NO BLDS
RUN 164 TP 4
LEGEND
SYM CH PARAMETER
66 ALPHA
10.
09.
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00.
VERTICAL FLOW ANGLE, ALPHA - DEGREES
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04.
08.
12.
16.
20.
24.
1/3 OCTAVE NUMBER

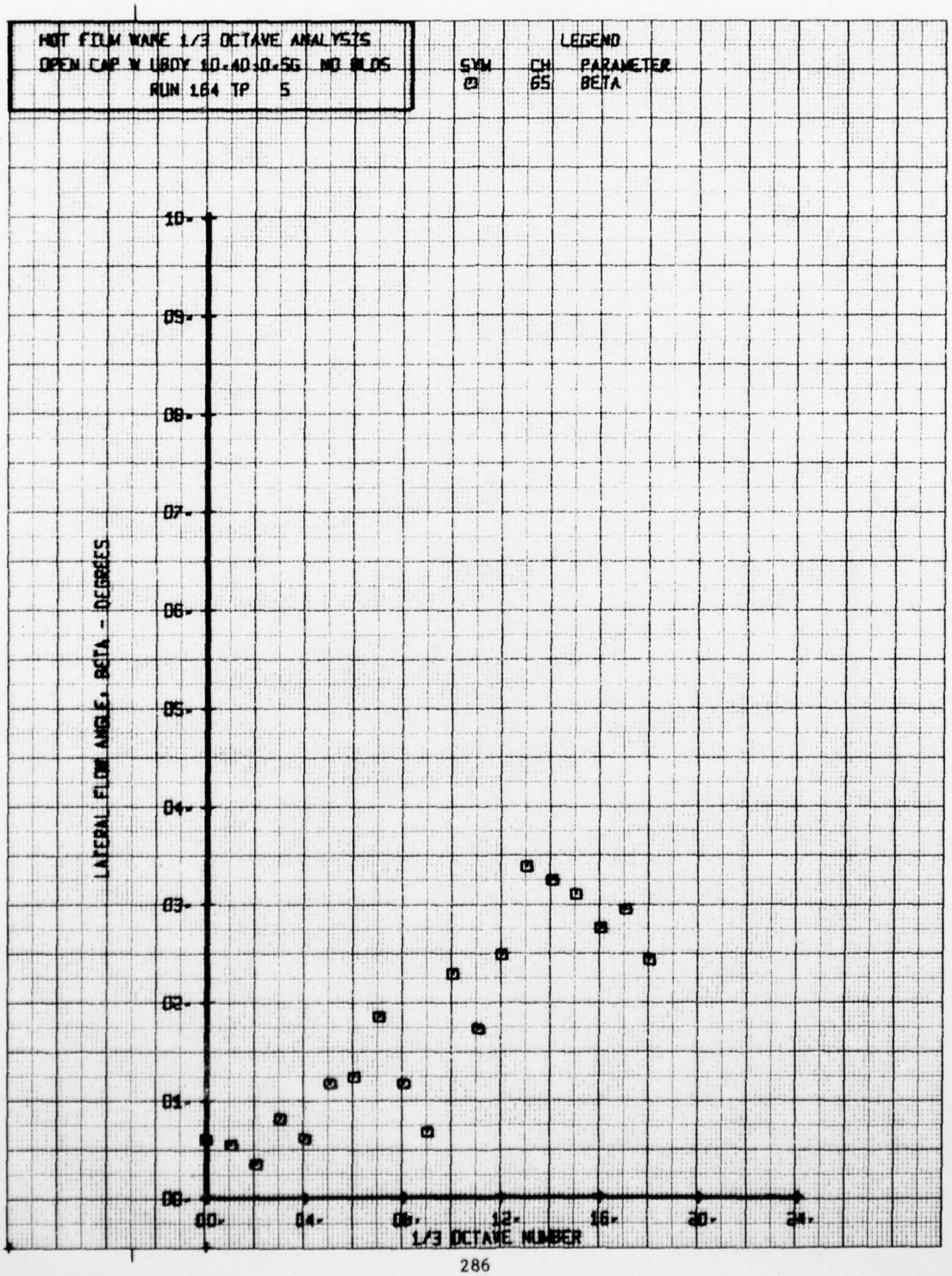

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBODY 10-40-0-5G NO BLDS
RUN 164 TP 5
LEGEND
SYM CH PARAMETER
66 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

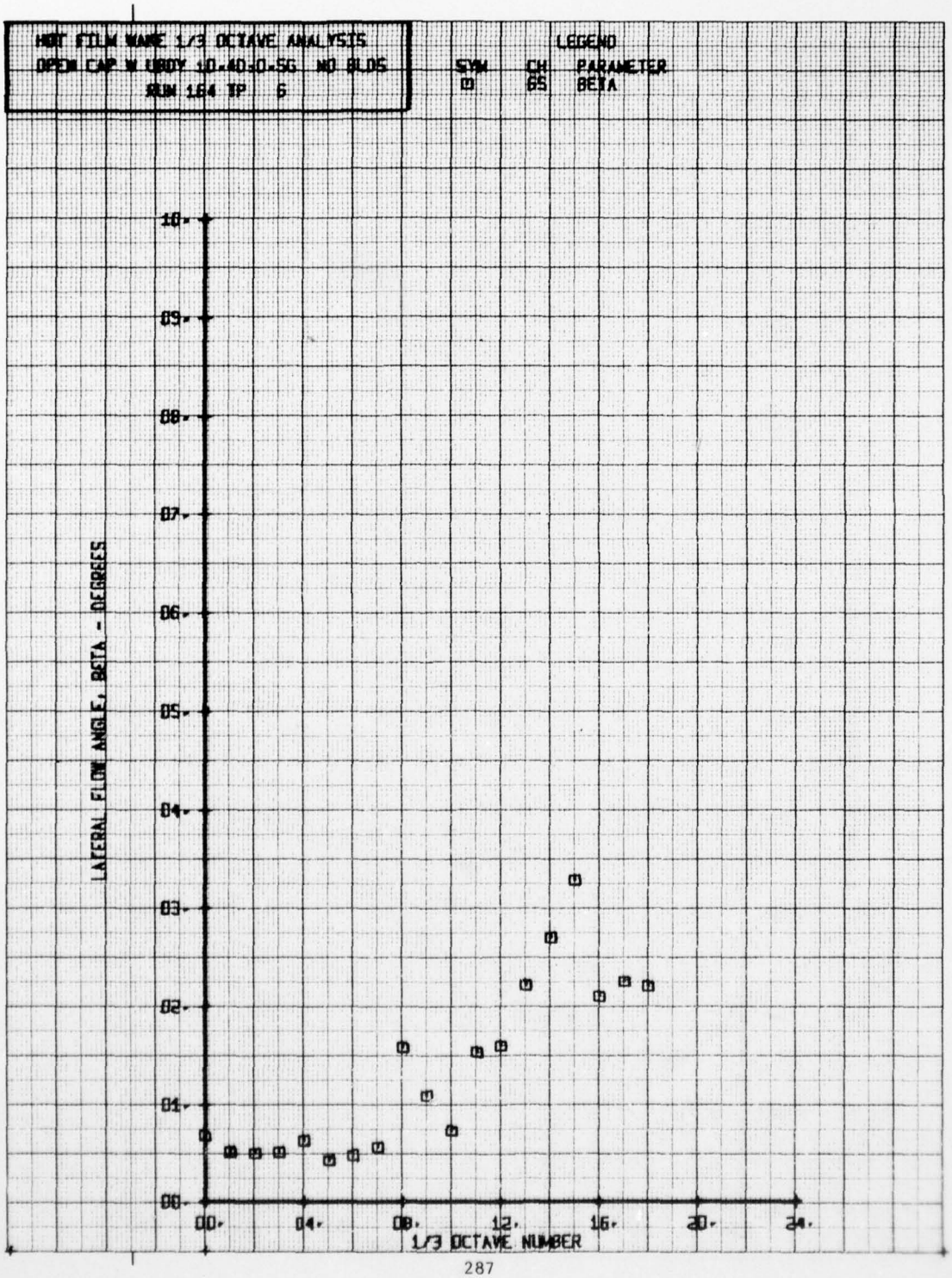

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W LEDGY 10-40-0-5G NO BLOS
RUN 164 TP 6
LEGEND
SYM CH PARAMETER
66 ALPHA
10.
09.
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07.
06.
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24.
1/3 OCTAVE


HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W LOBBY 10-40-0-56 NO BLDG
RUN 164 TP 2
LEGEND
SYM CH PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER


HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W LBODY 10.40.0.5G NO BLDS
RUN 164 TP 3
LEGEND
SYM CH PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER
10.
09.
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07.
06.
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04.
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02.
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04.
08.
12.
16.
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24.

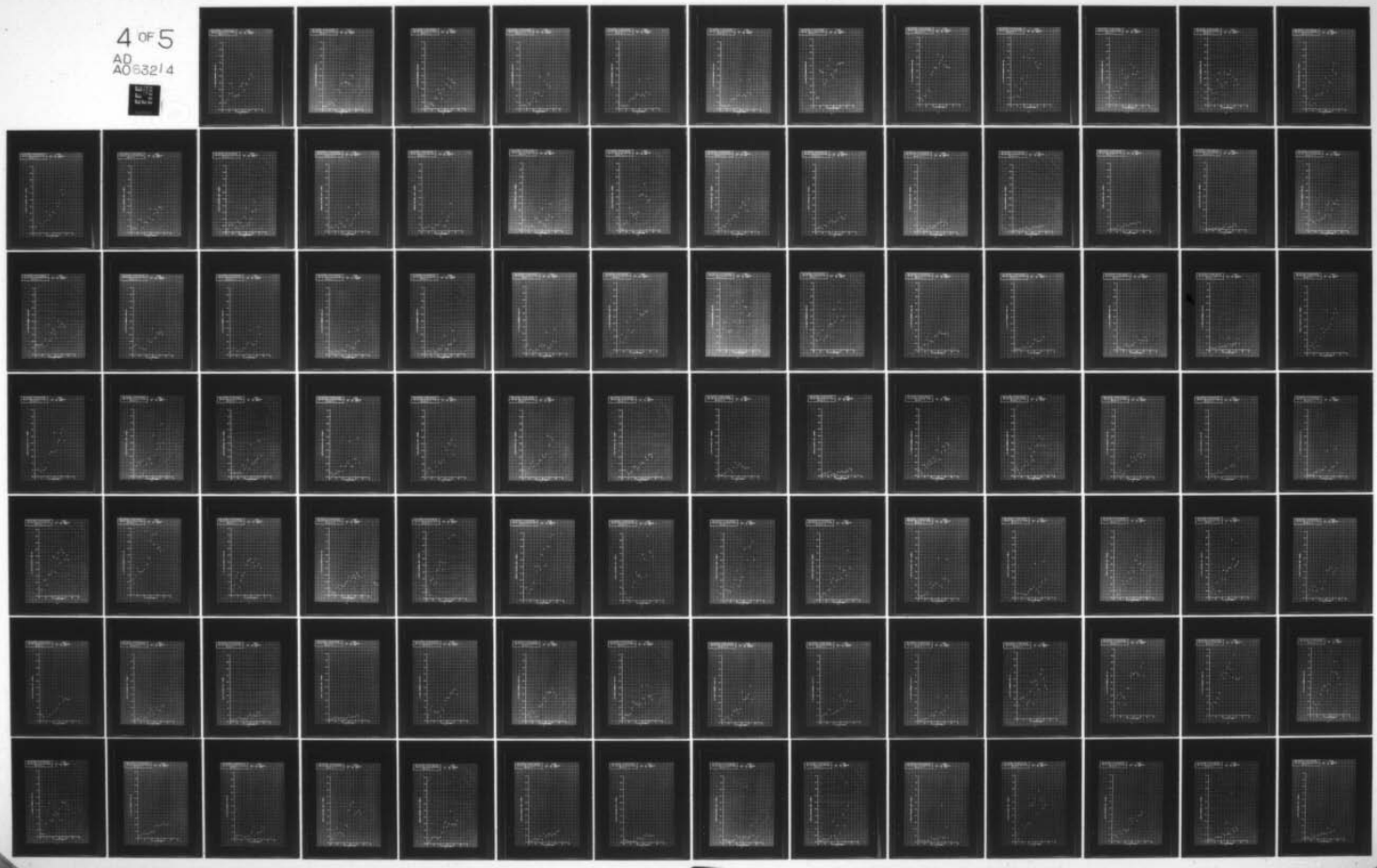

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 10.40.0.5G NO BLOS
RUN 164 TP 4
LEGEND
SYM CH PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER

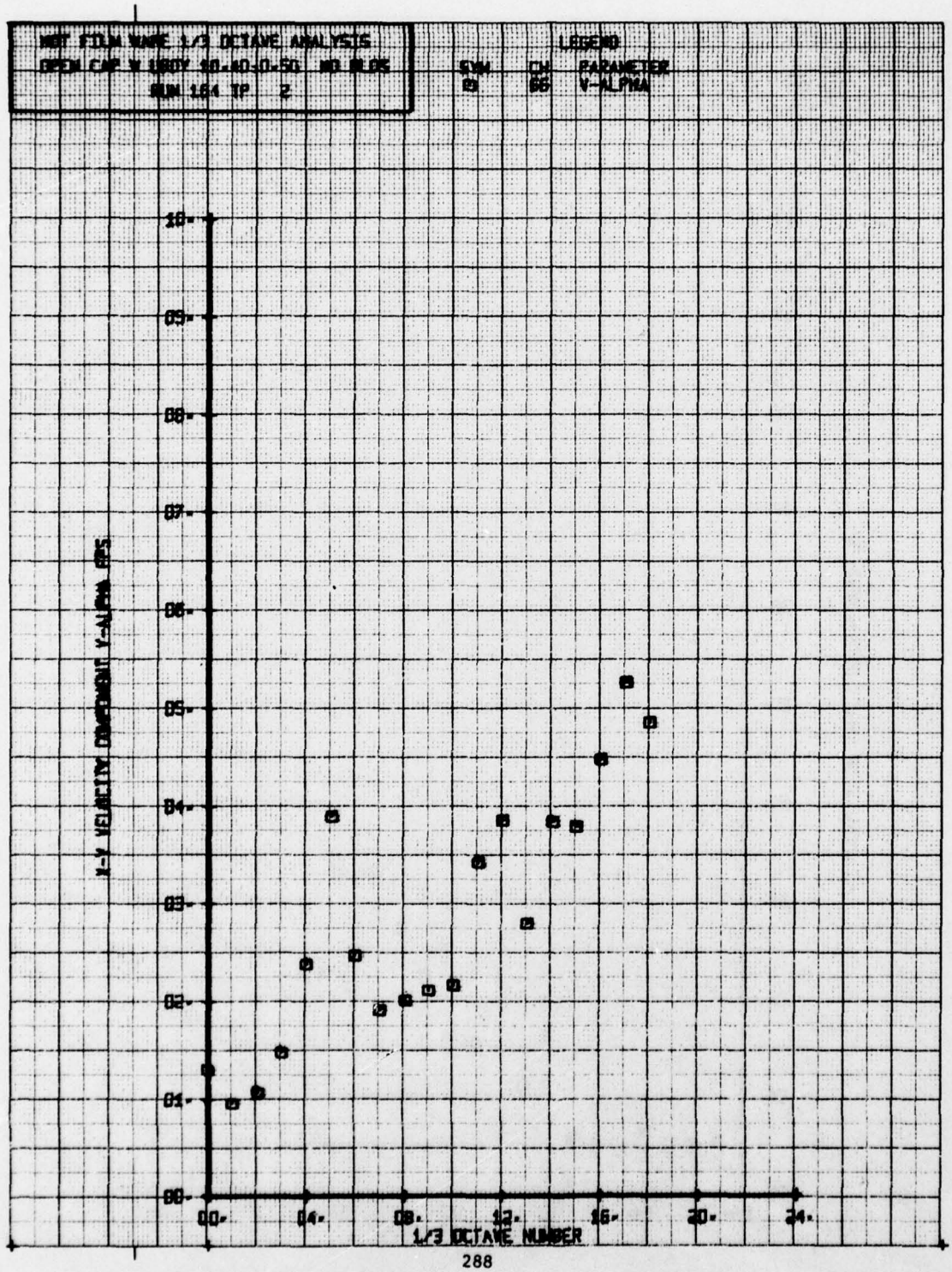

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 10-40-0-5G NO BLOS
RUN 164 TP 5
LEGEND
SYM CH PARAMETER
0 65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
10.
09.
08.
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12.
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24.
1/3 OCTAVE NUMBER

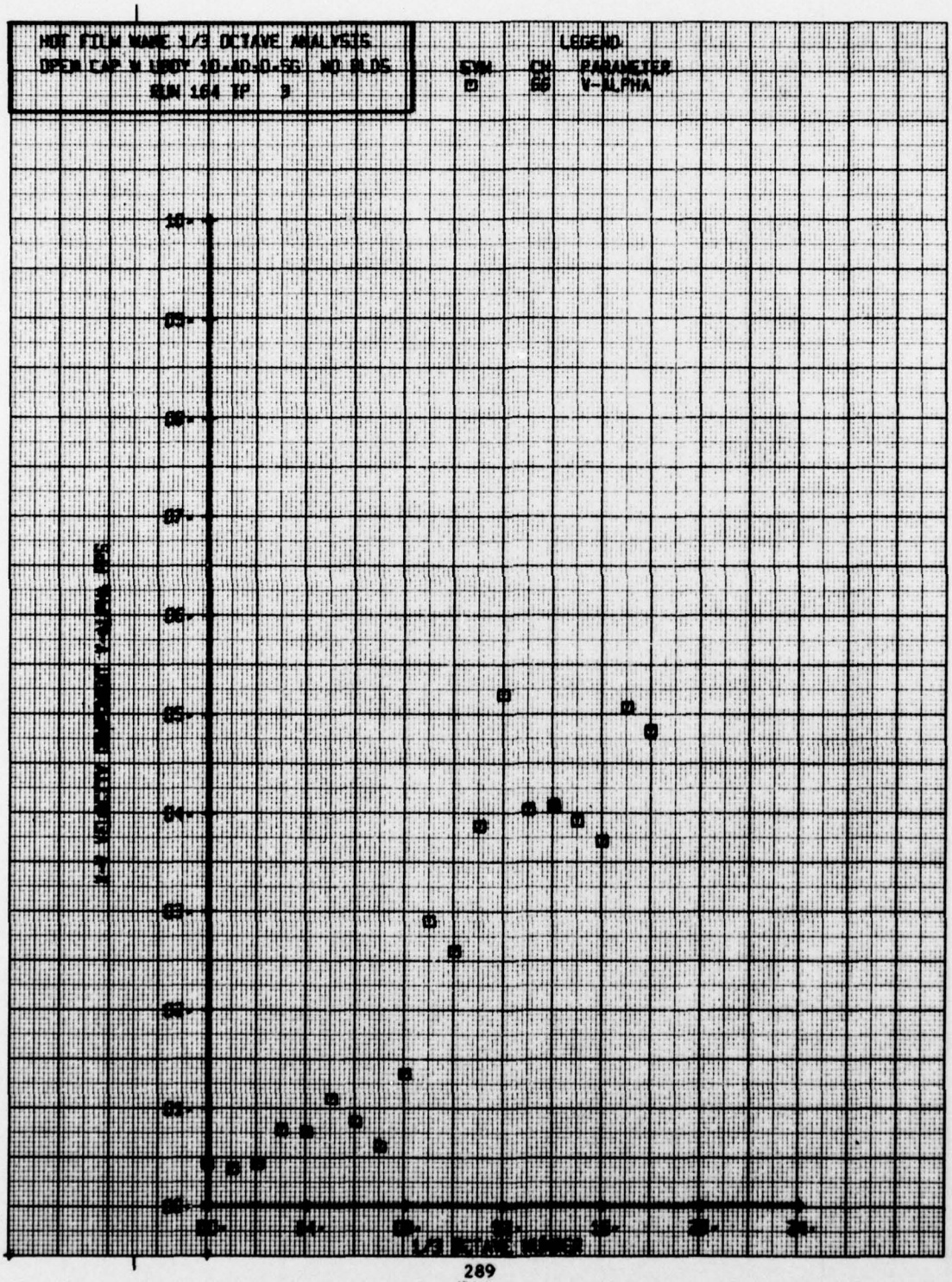

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBDY 10.40-0.56 NO BLDS
RUN 164 TP 6
LEGEND
SYM CH PARAMETER
65 BETA
10.
09.
08.
07.
06.
05.
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LATERAL FLOW ANGLE, BETA - DEGREES
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04.
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12.
16.
20.
24.
1/3 OCTAVE NUMBER

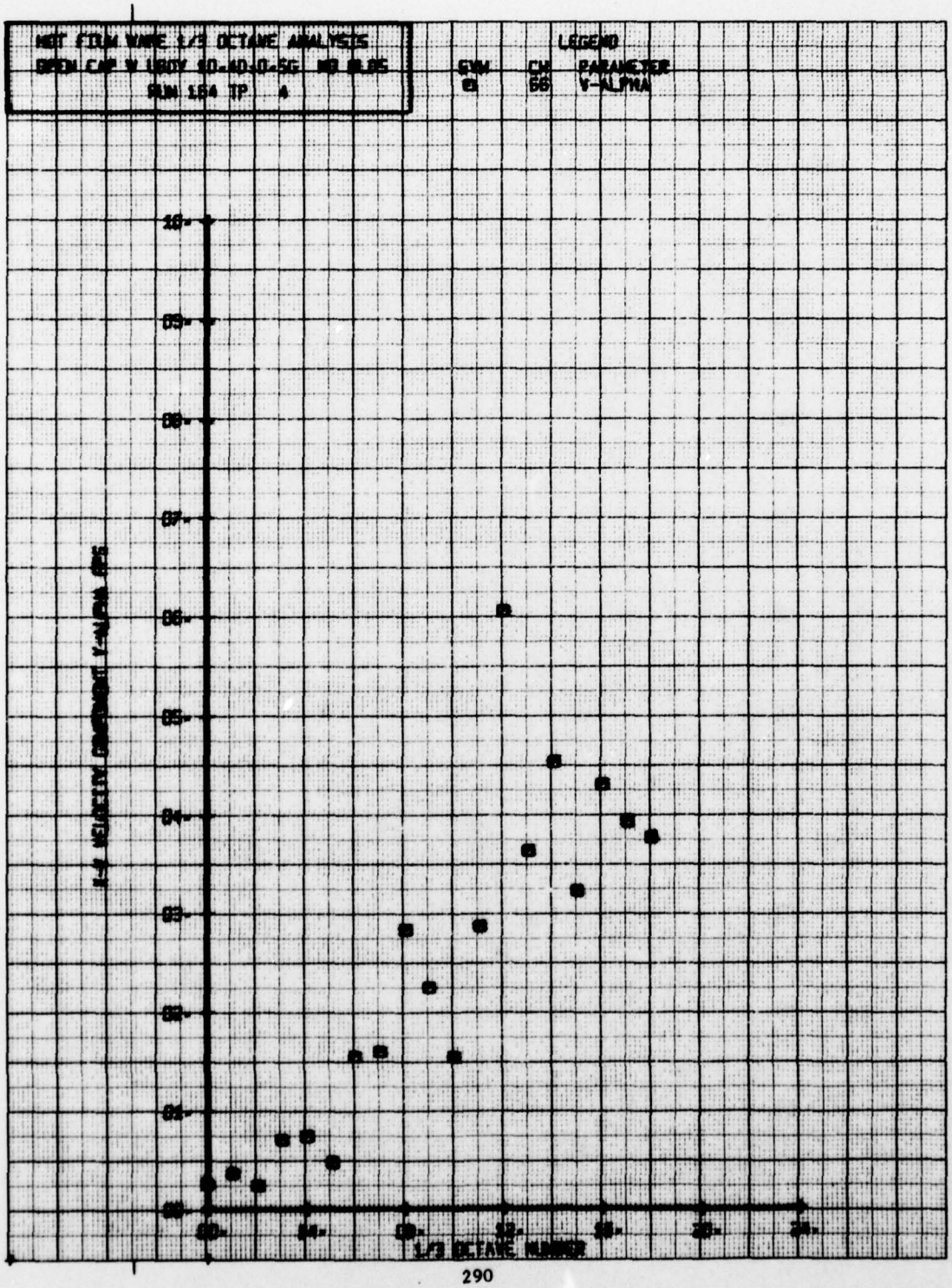
AD-A063 214 BOEING VERTOL CO PHILADELPHIA PA F/G 1/3
INTERACTIONAL AERODYNAMICS OF THE SINGLE ROTOR HELICOPTER CONFI--ETC(U)
SEP 78 P F SHERIDAN DAAJ02-77-C-0020
UNCLASSIFIED USARTL-TR-78-23D NL

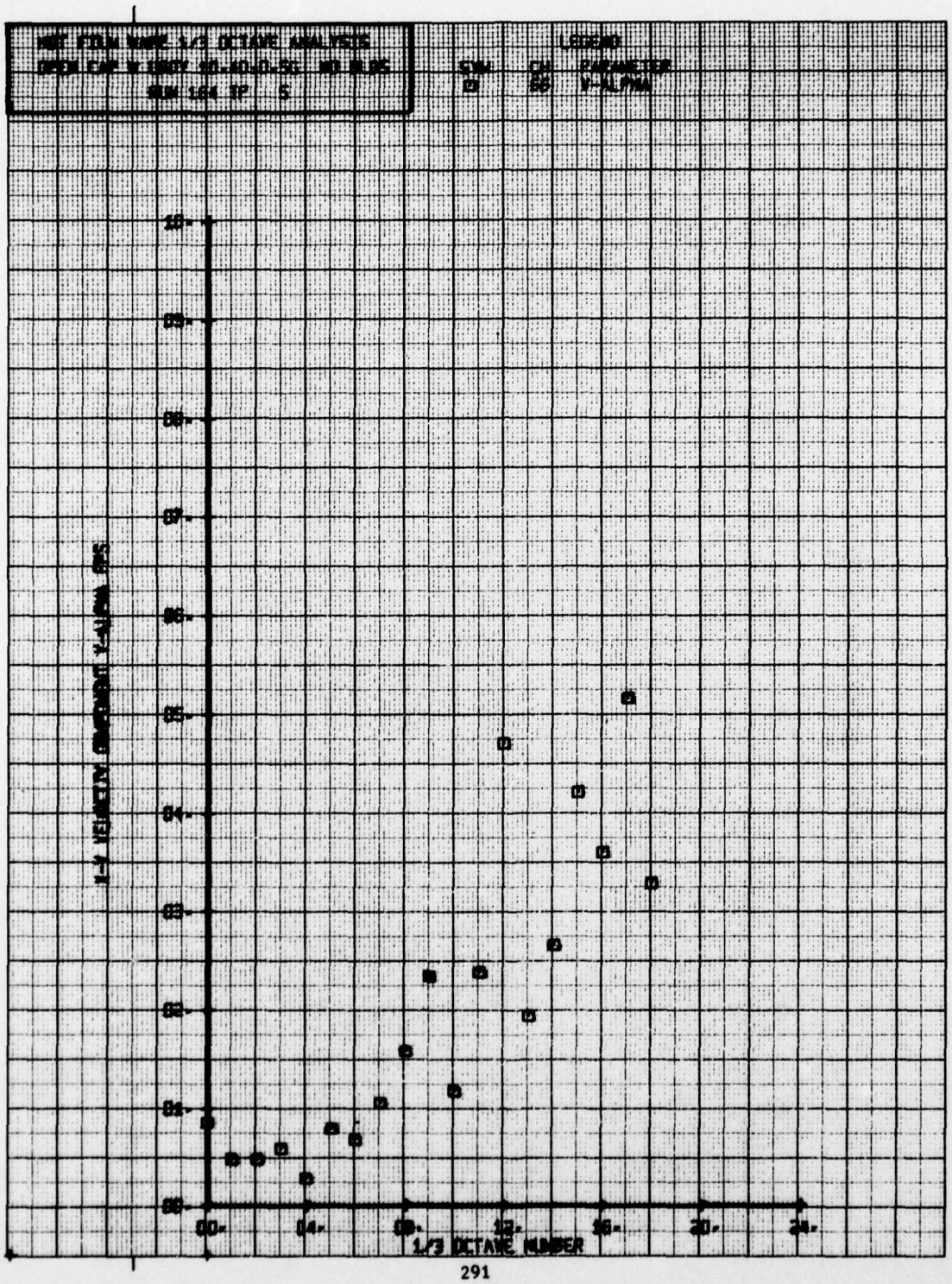
4 OF 5
AD
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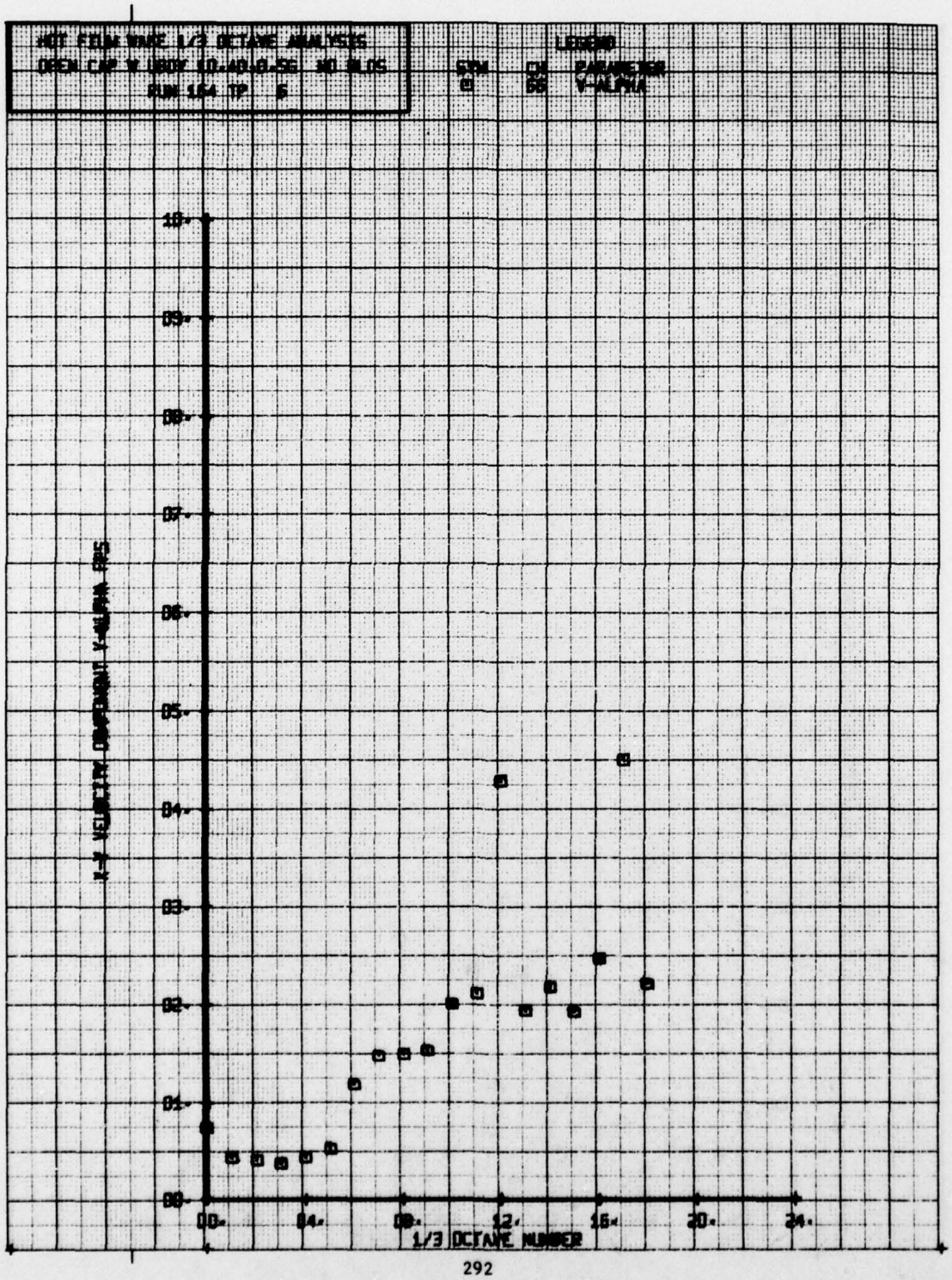


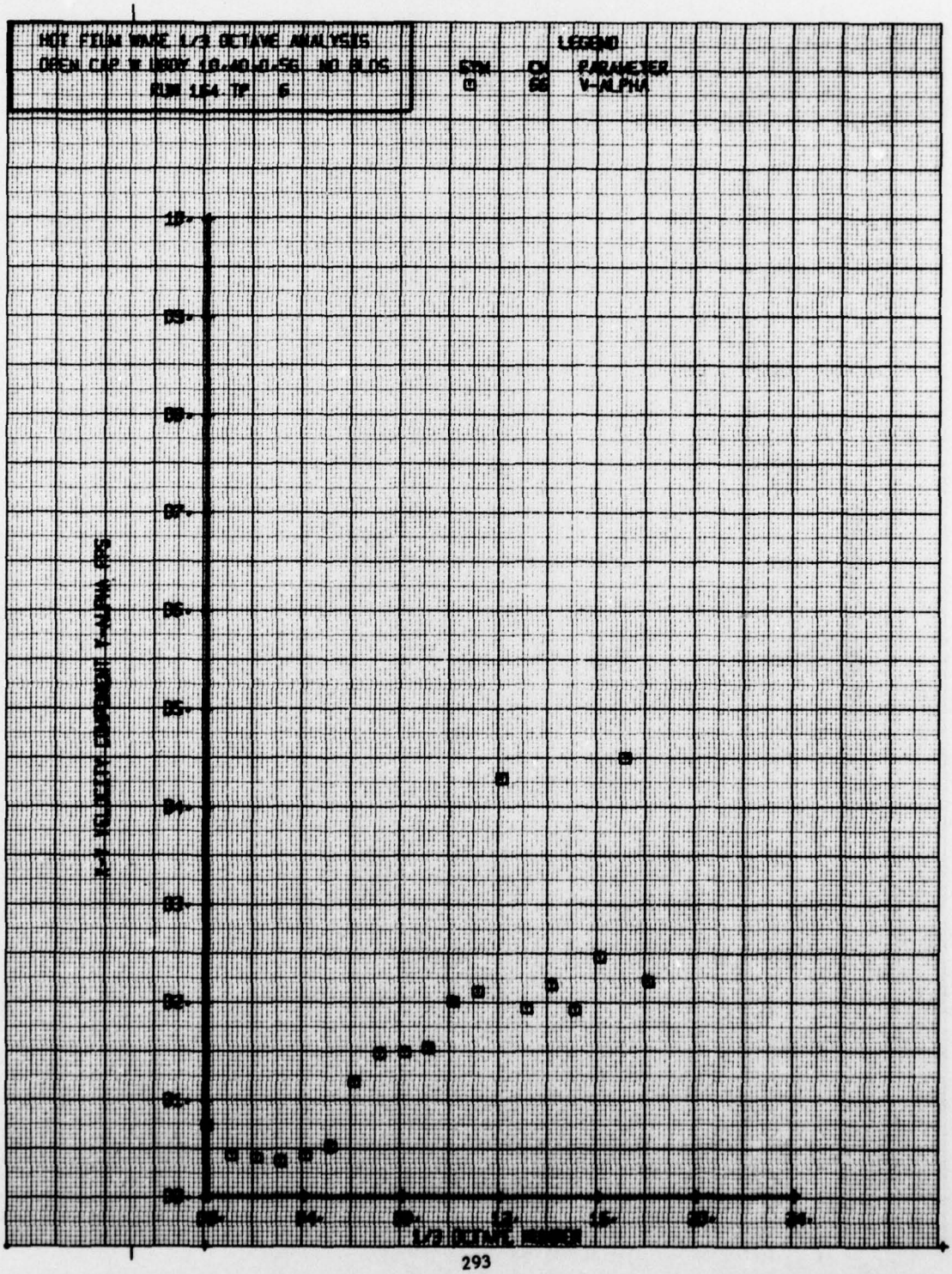

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W BODY 10-40-0-50 NO BLDG
RUN 164 TP 2
LEGEND
SYM CH PARAMETER
U V-ALPHA
10.
09.
08.
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06.
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U-V VELOCITY COMPONENT V-ALPHA RMS
00.
04.
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12.
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24.
1/3 OCTAVE NUMBER

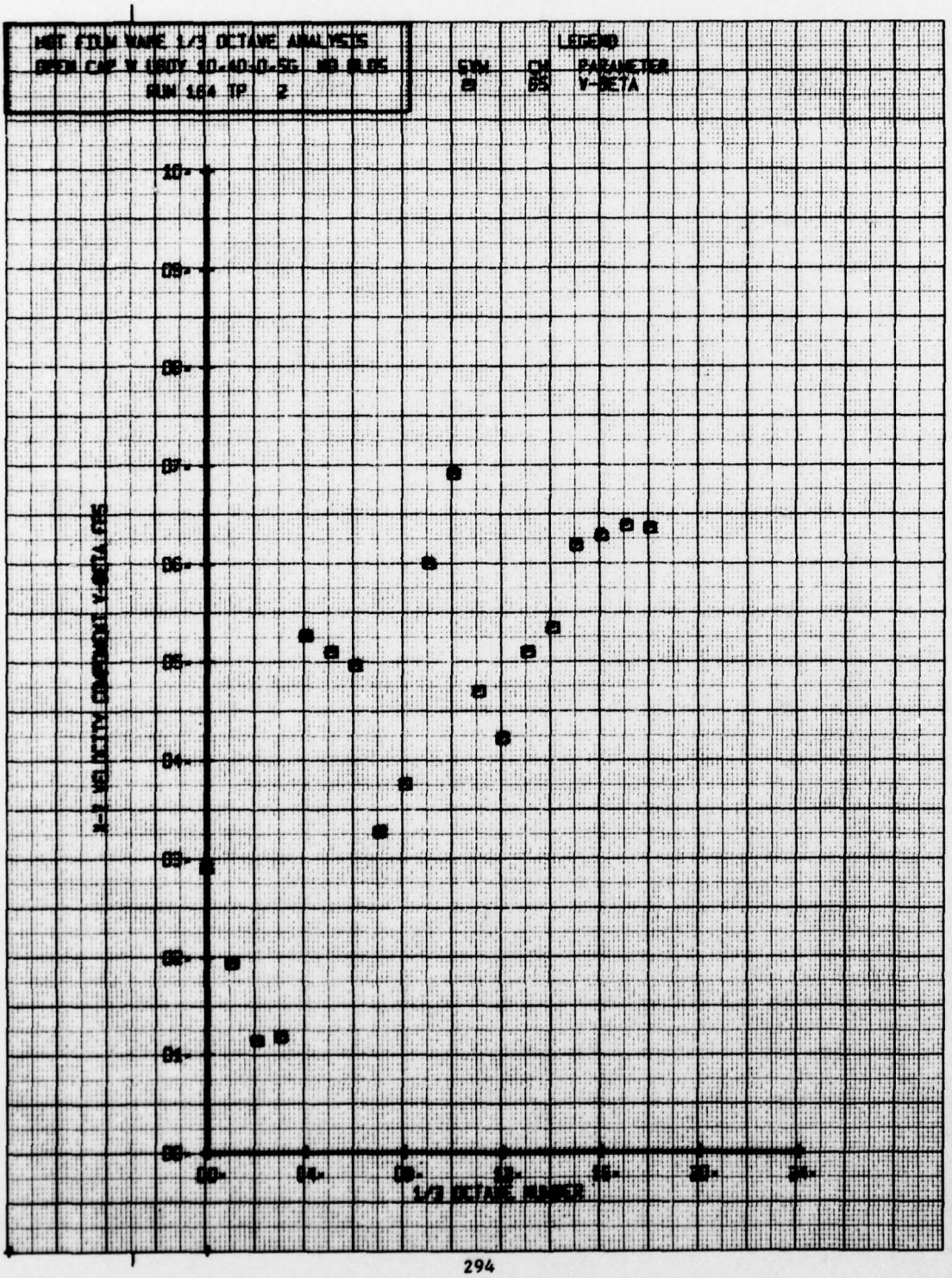

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W LBODY 10-40-0-SG NO BLDS
RUN 164 TP 3
LEGEND
SYM CH PARAMETER
D SG V-ALPHA

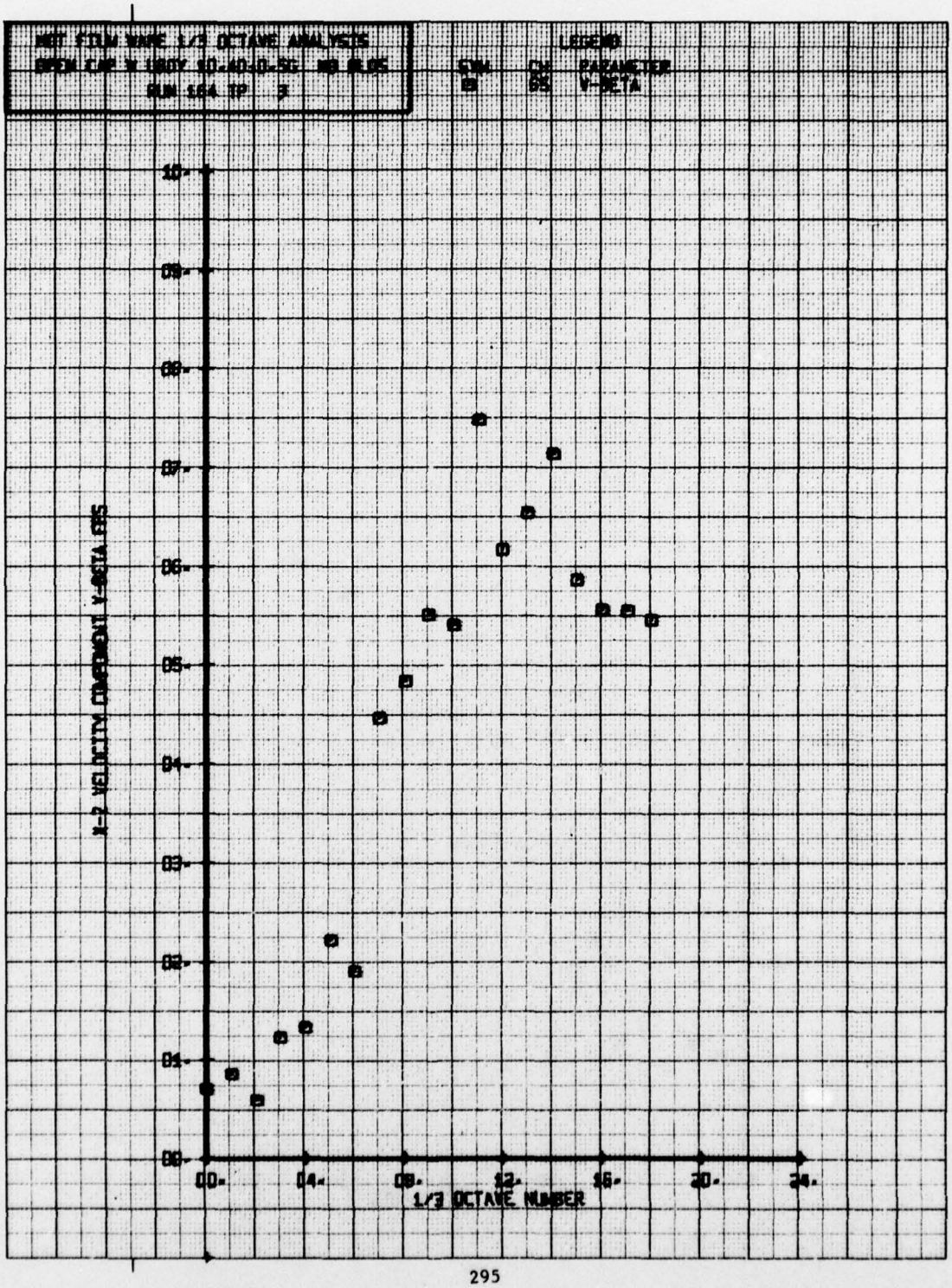

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP V BODY 40-40-0-SG MB 88.05
RUN 164 TP 4
LEGEND
GVM CH PARAMETER
8 66 V-ALPHA
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
1/3 OCTAVE NUMBER

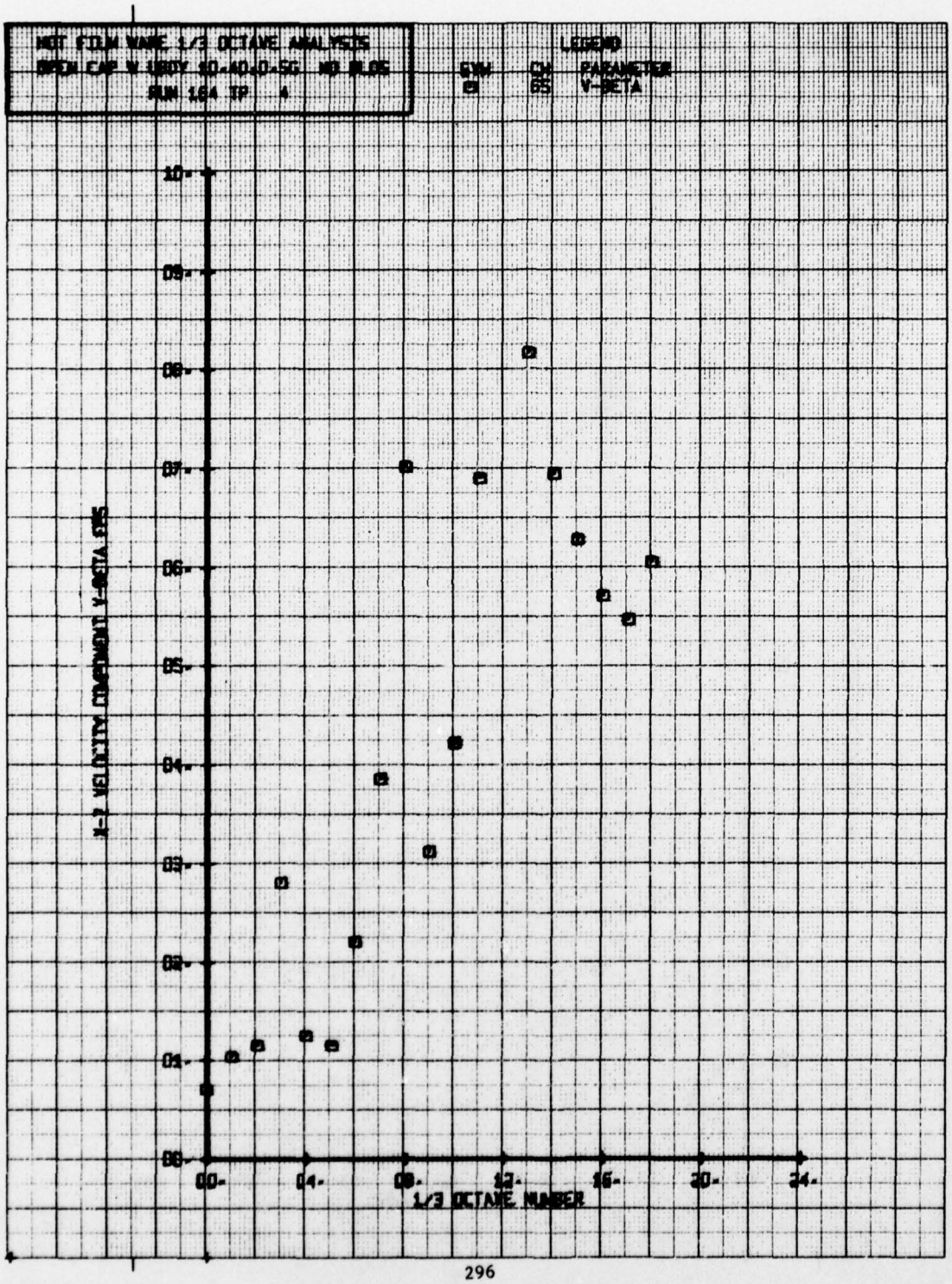

LEGEND
SYM CH PARAMETER
V-ALPHA
1/3 OCTAVE NUMBER

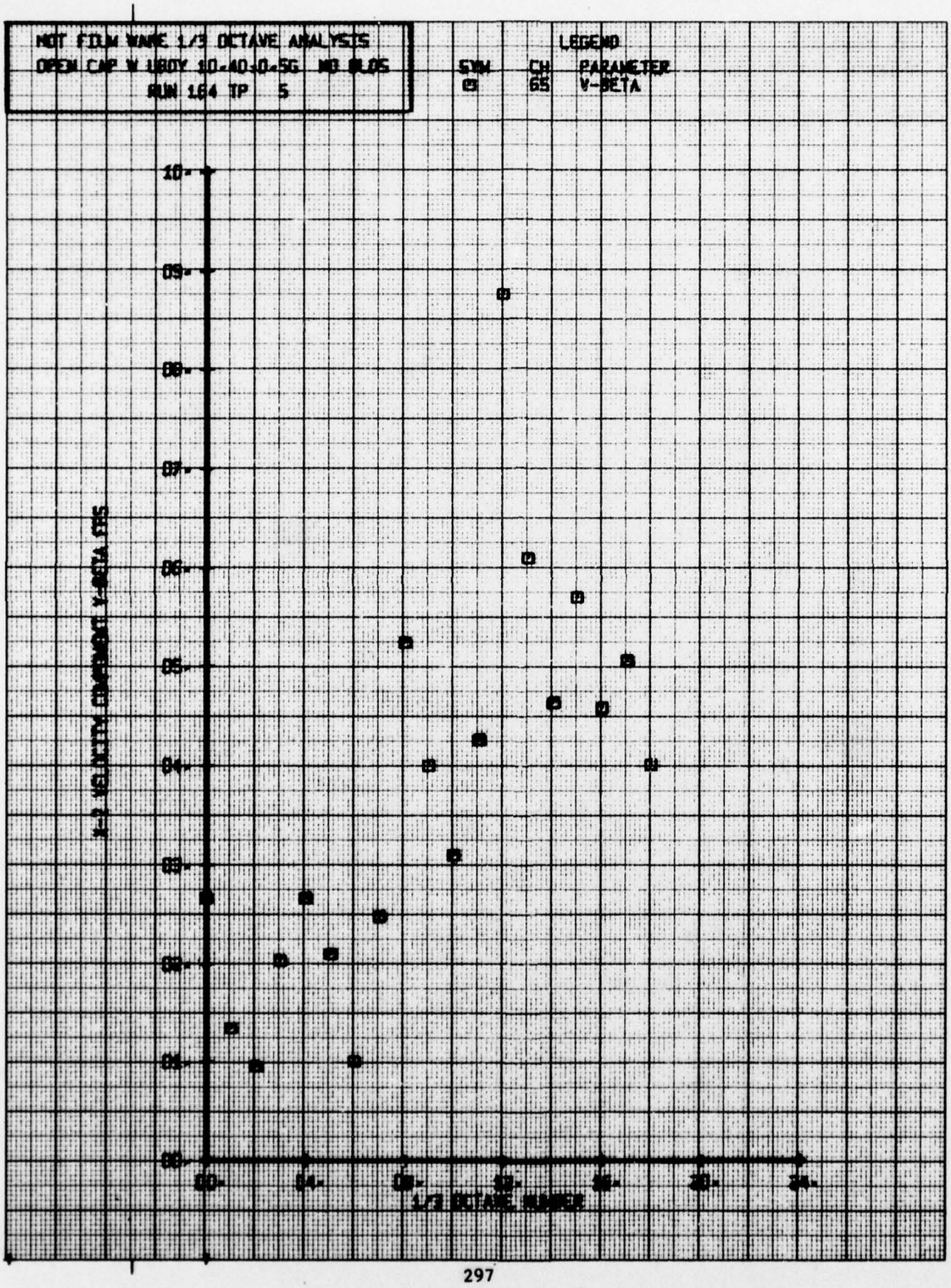

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W LBOV 10.40.0-55 x0 RLOS
RUN 104 TP 5
LEGEND
SYM PARAMETER
V-ALPHA
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.0
4.0
8.0
12.
16.
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24.
1/3 OCTAVE NUMBER

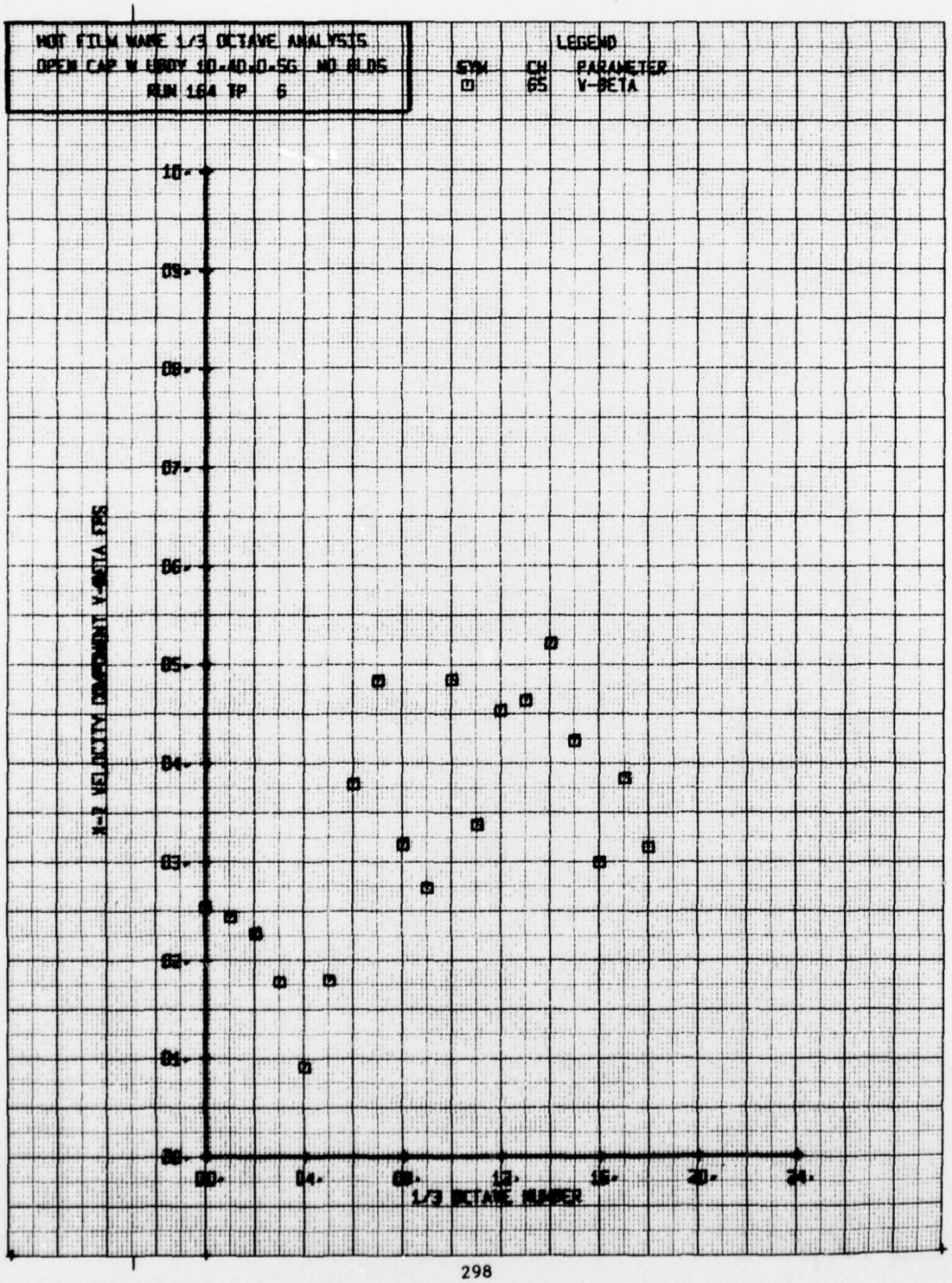

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UNDV 10.40/0.56 NO BLOS
RUN 164 TP 6
LEGEND
SYM
CH
PARAMETER
V-ALPHA
1/3 OCTAVE

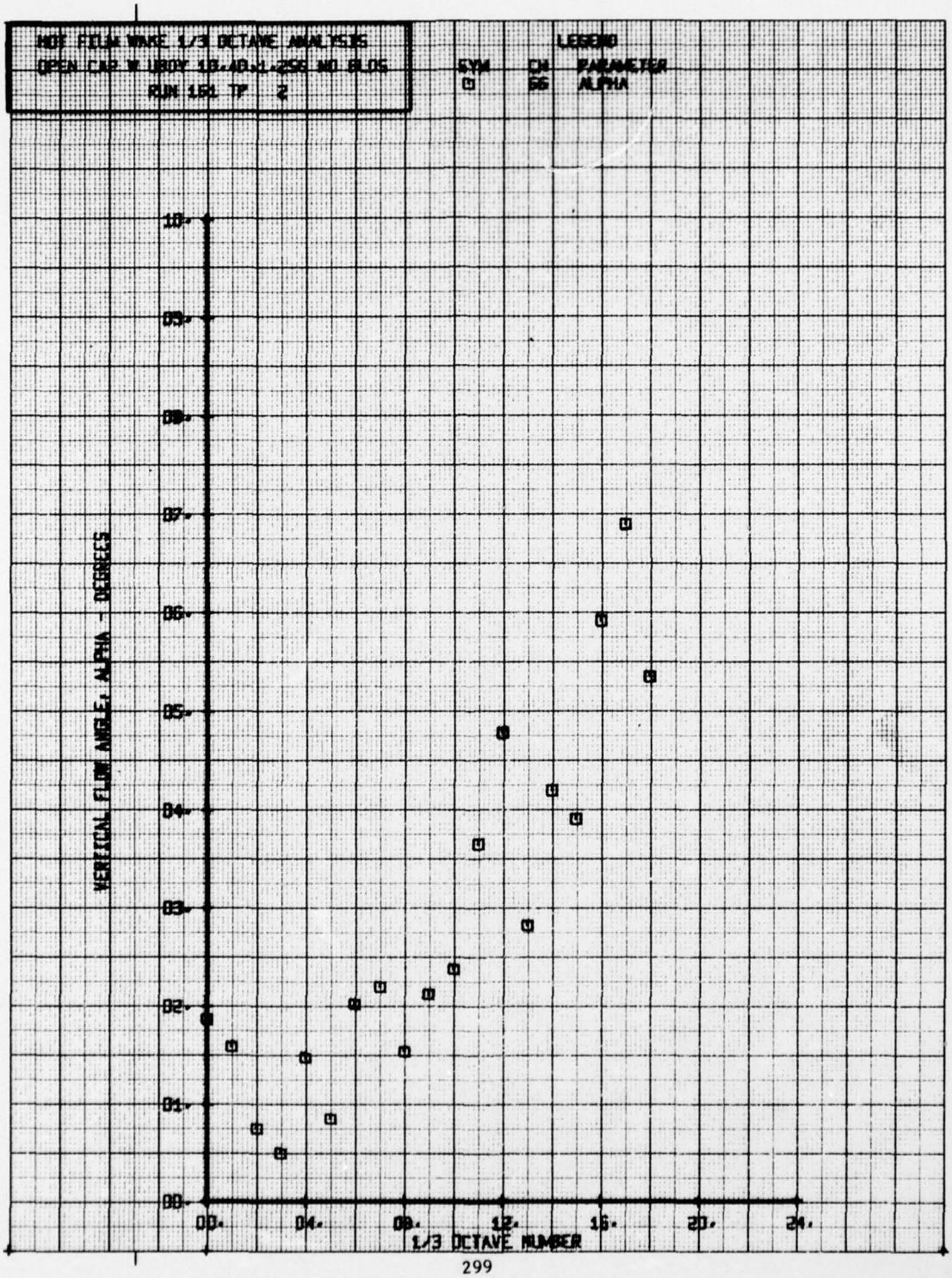

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W LIROY 40-40-0-SG NO BLDG
RUN 164 TP 2
LEGEND
GRM CM PARAMETER
20 85 V-BETA
10
09
08
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08
12
16
20
24
1/3 OCTAVE NUMBER

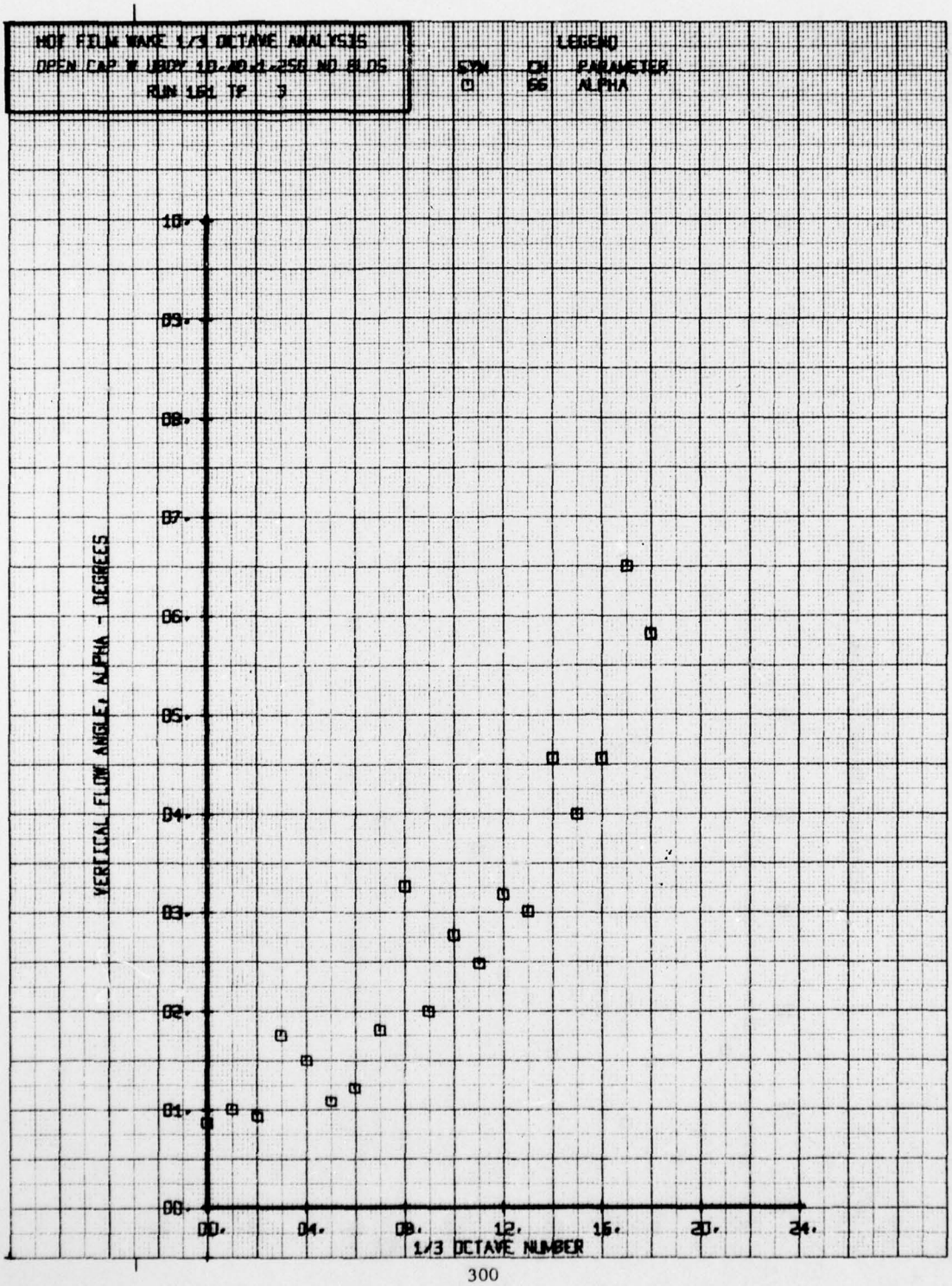

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
RUN 164 TP 3
LEGEND
SYM CH PARAMETER
02 V-BETA
10
09
08
07
06
05
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20
24
1/3 OCTAVE NUMBER
K-2 VELOCITY COMPONENT V-BETA SES

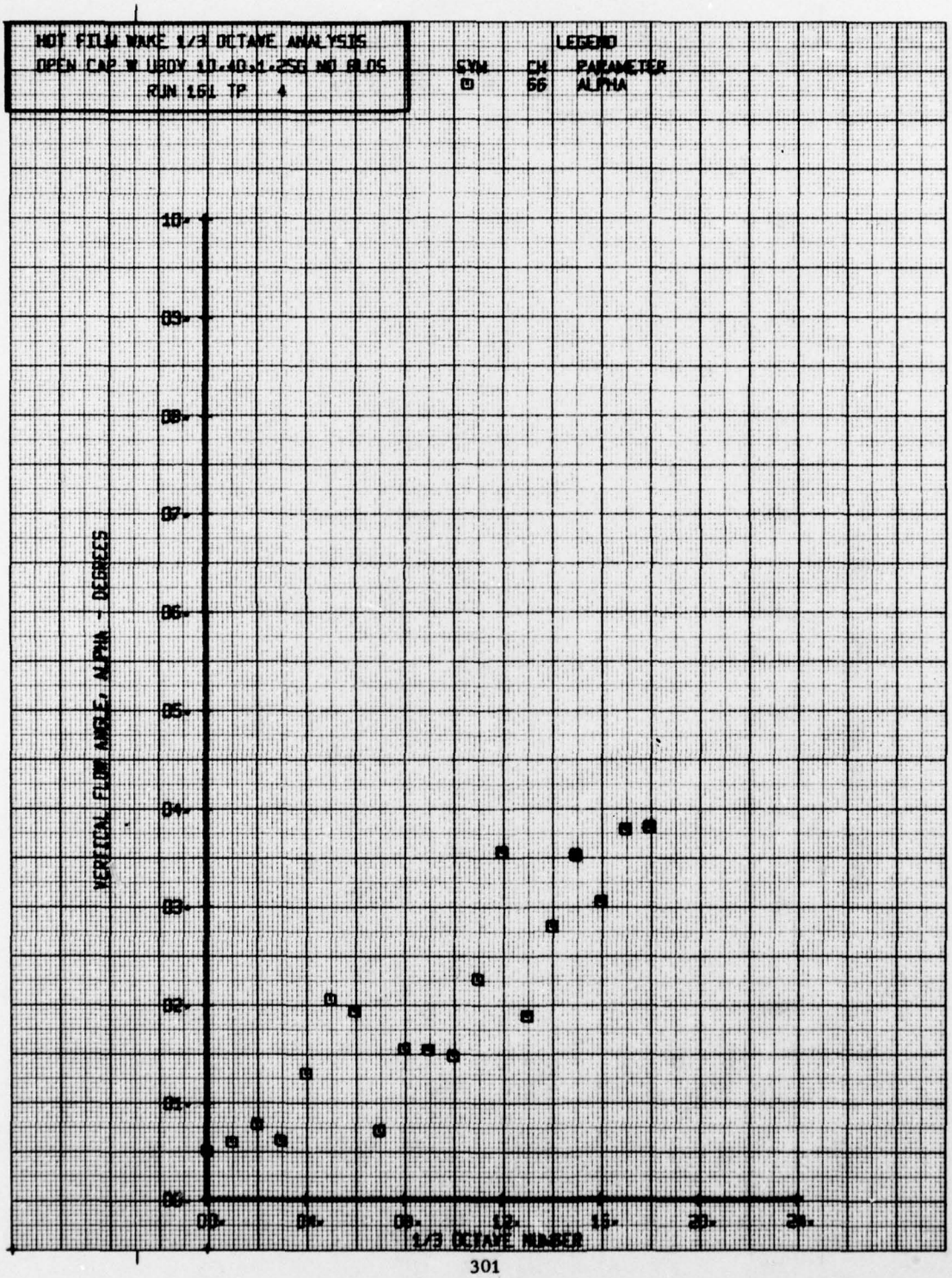

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W LBOV 40-40.0-SG NO BLDE
RUN 164 TP 4
LEGEND
CNW CH PARAMETER
0 65 V-BETA
10-
09-
08-
07-
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24-
1/3 OCTAVE NUMBER
K-2 VELOCITY COMPONENT V-BETA GES

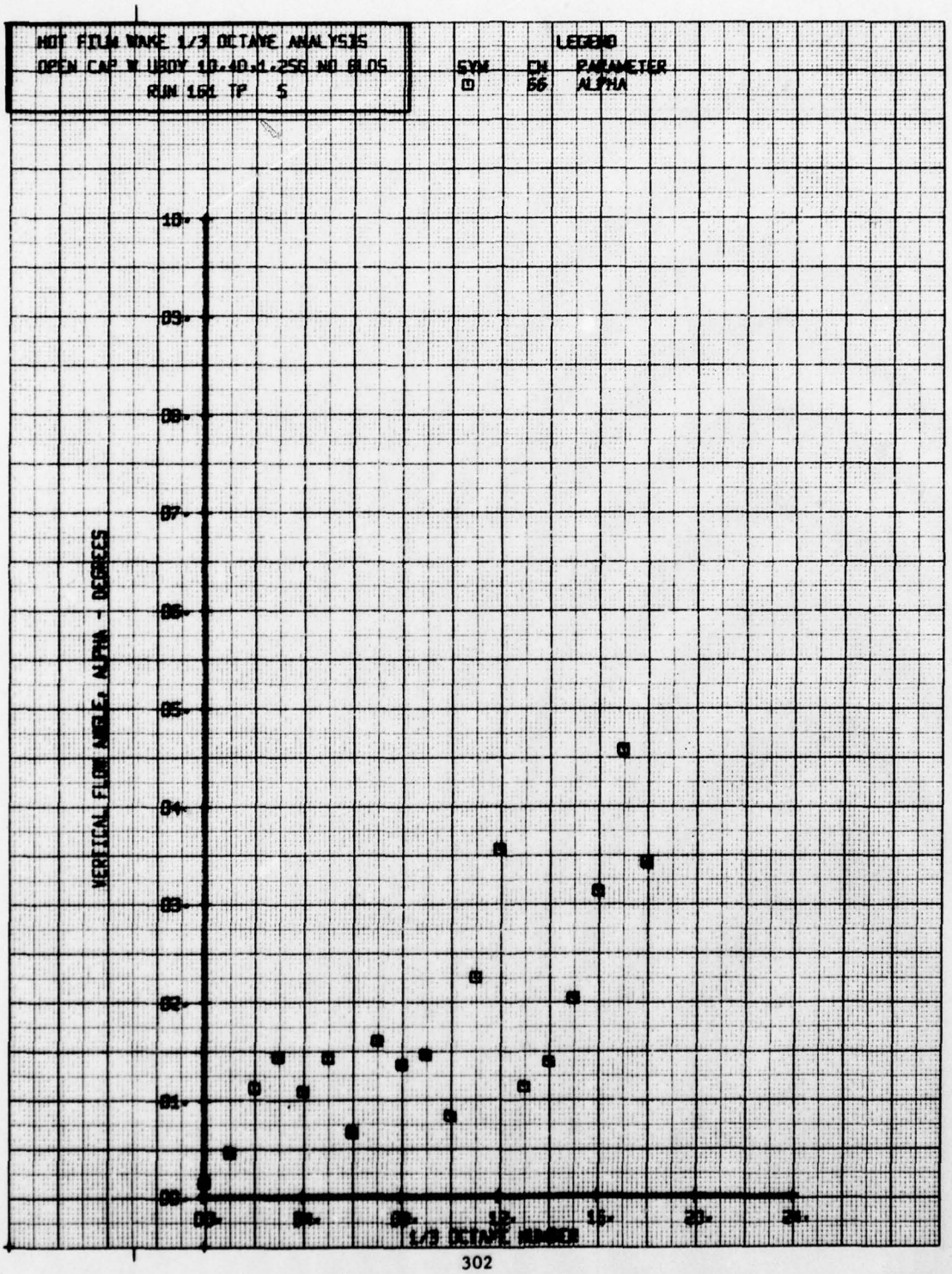

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 10-40-0-5G NO BLDS
RUN 164 TP 5
LEGEND
SYM CH PARAMETER
65 V-BETA
10-
09-
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06-
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04-
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12-
16-
20-
24-
1/3 OCTAVE NUMBER

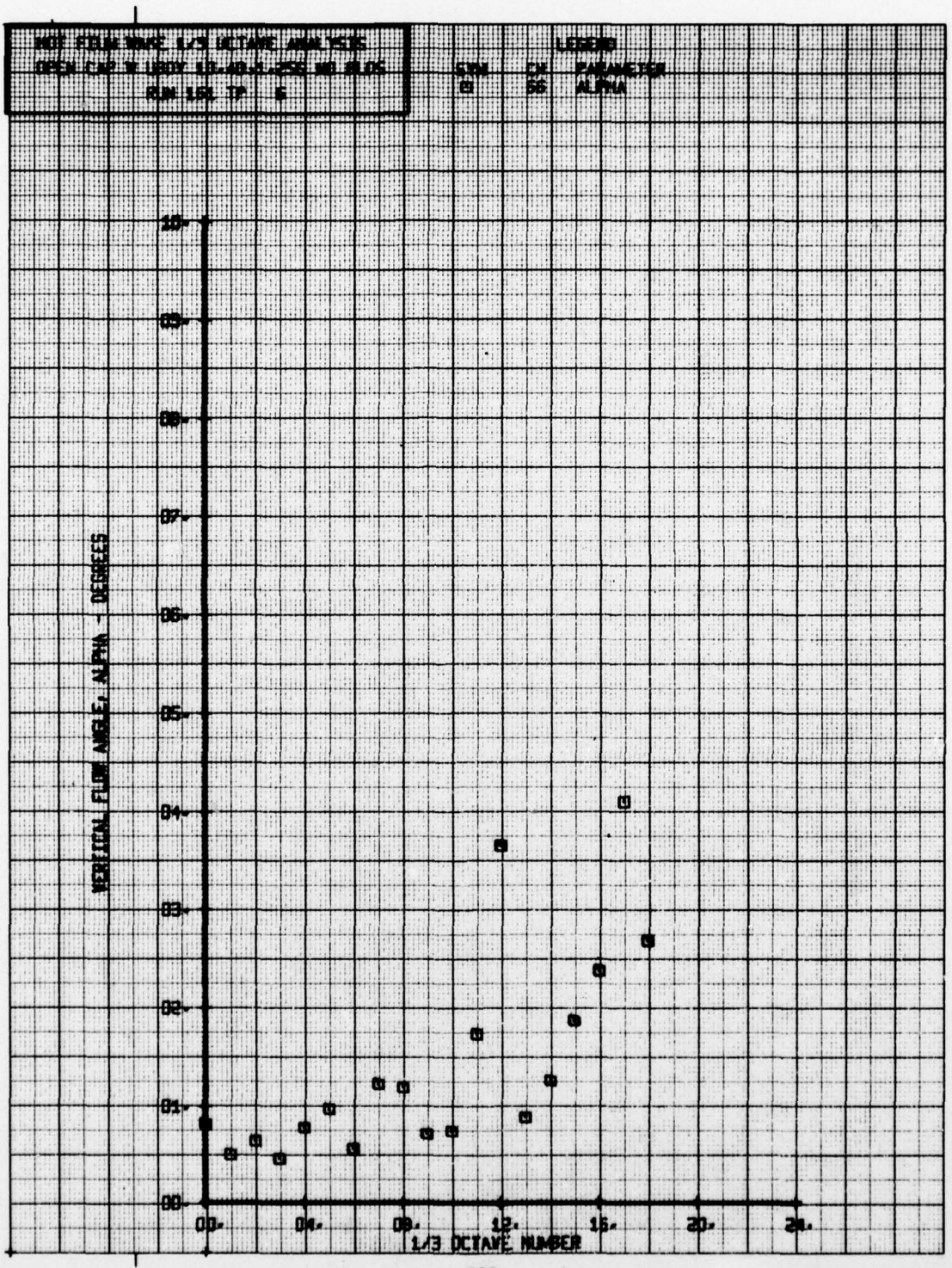

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W LBODY 10-40.0-SG NO BLDS
RUN 164 TP 6
LEGEND
SYM CH PARAMETER
65 V-BETA
10.
09.
08.
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1/3 OCTAVE NUMBER
SEE VELOCITY FLUCTUATION INTENSITY

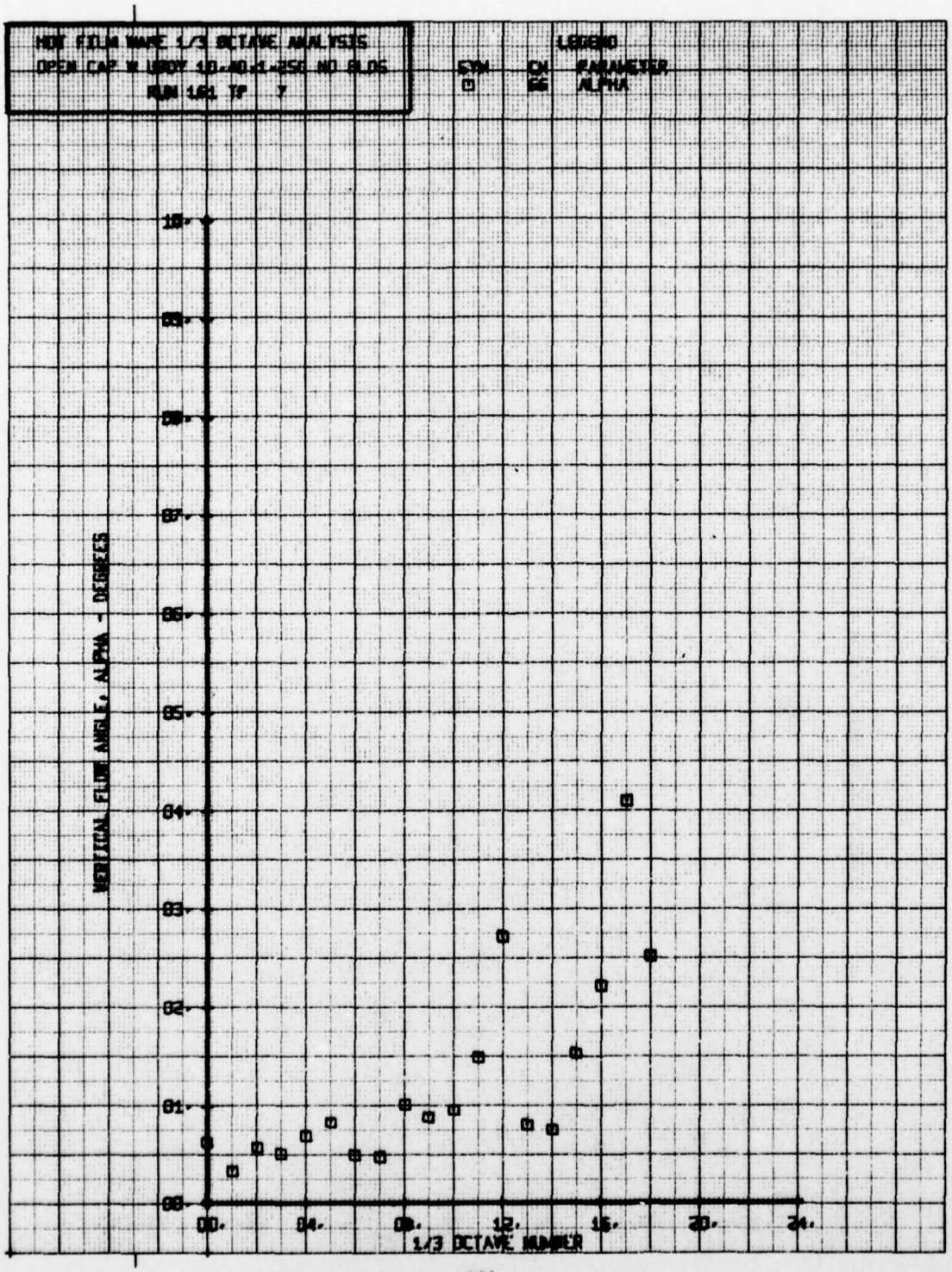

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W BOOY 10.AD=1.25S NO BLOS
RUN 151 TP 2
LEGEND
SYM CH PARAMETER
66 ALPHA
10.
09.
08.
07.
06.
05.
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03.
02.
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00.
VERTICAL FLOW ANGLE, ALPHA - DEGREES
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04.
08.
12.
16.
20.
24.
1/3 OCTAVE NUMBER

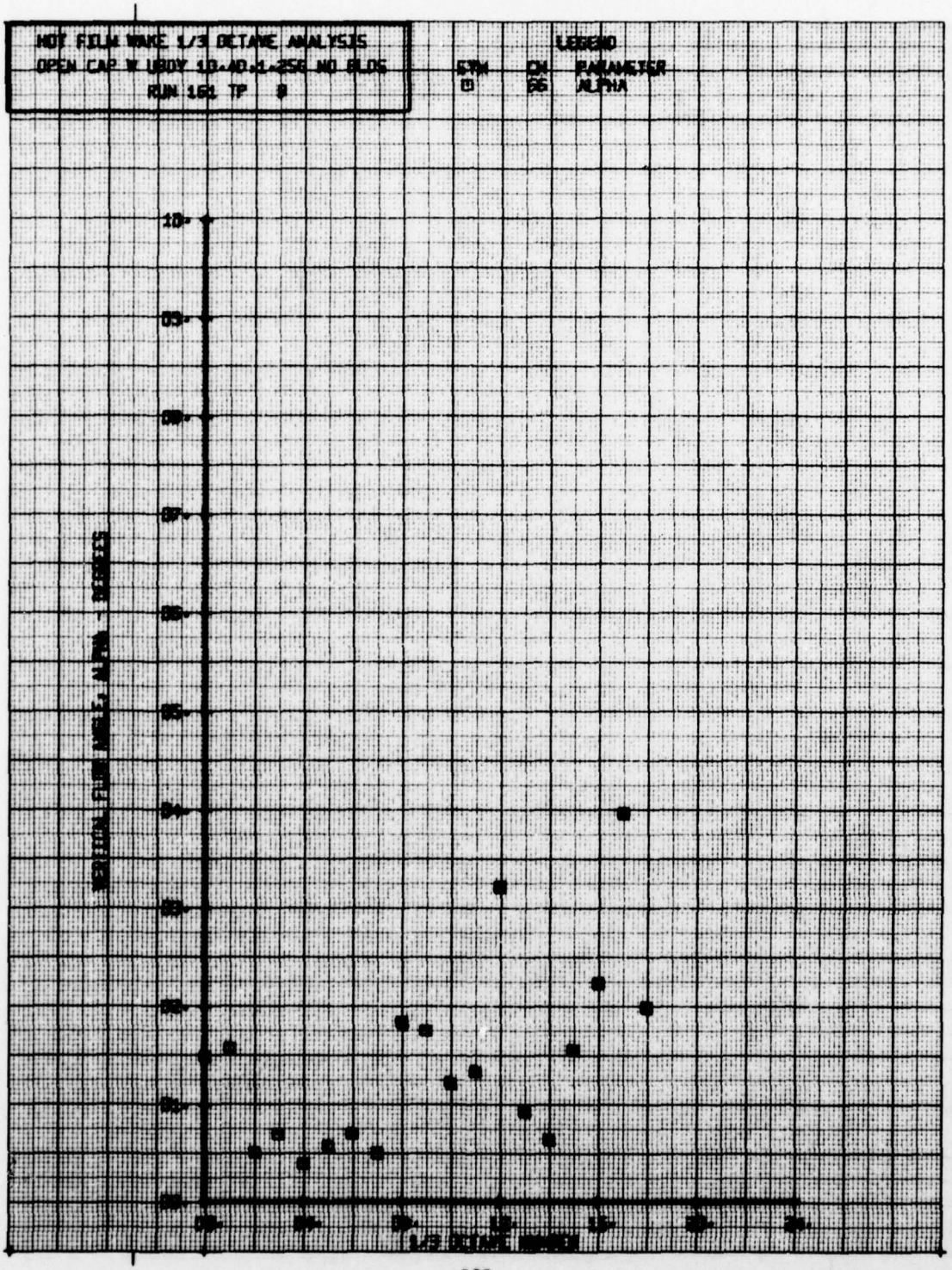

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W BODY 10.-AD.1.-25R NO BLDS
RUN 161 TP 3
LEGEND
SYM ID PARAMETER
66 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
10.
09.
08.
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06.
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16.
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24.
1/3 OCTAVE NUMBER

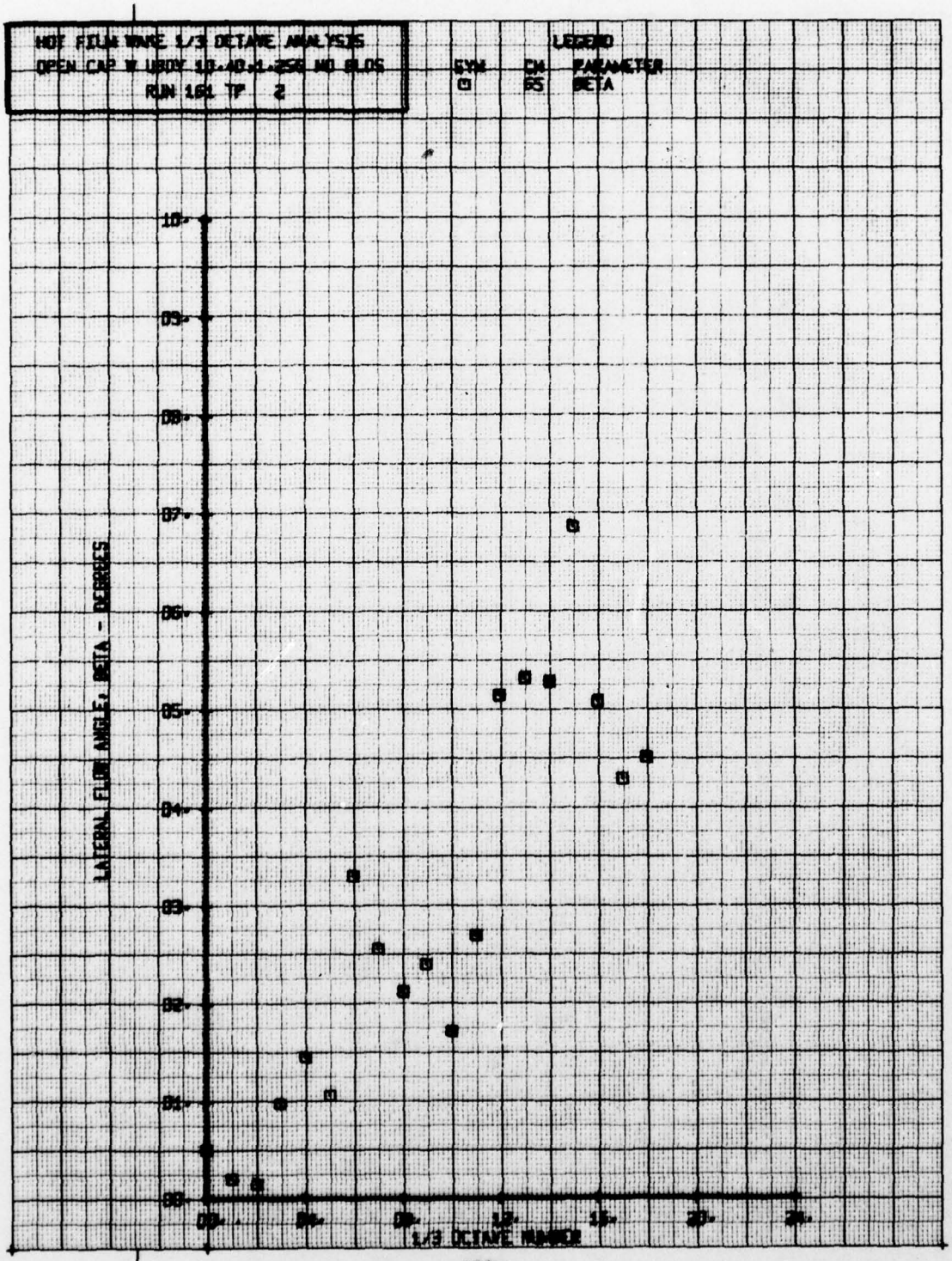

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 10.40.1.25G NO RUDS
RUN 161 TP 4
LEGEND
SYM CH PARAMETER
56 ALPHA
10.
09.
08.
07.
06.
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04.
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VERTICAL FLOW ANGLE, ALPHA - DEGREES
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04.
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12.
16.
20.
24.
1/3 OCTAVE NUMBER

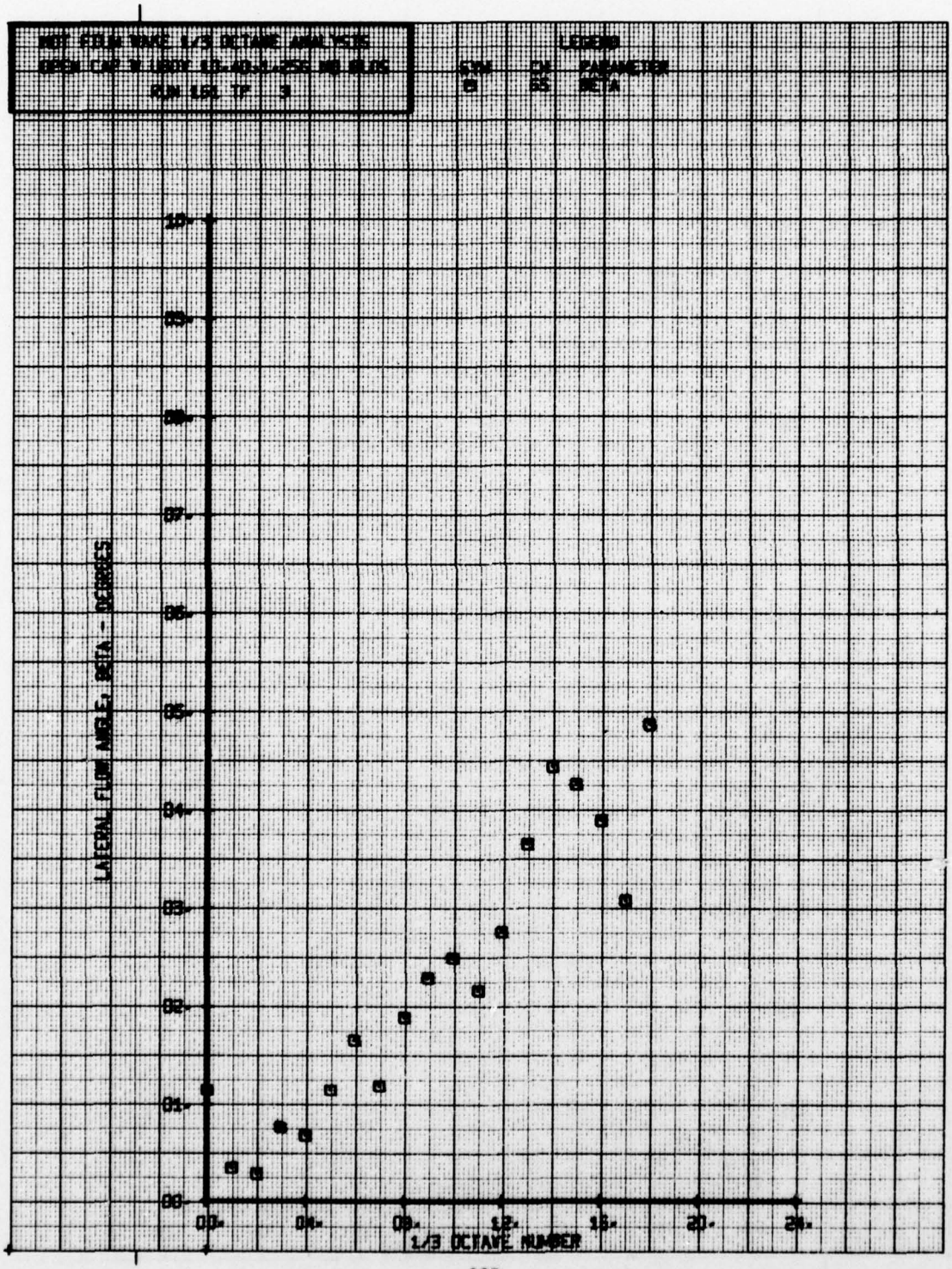

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 10.40.1.256 NO BLOS
RUN 161 TP 5
LEGEND
SYM CH PARAMETER
56 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

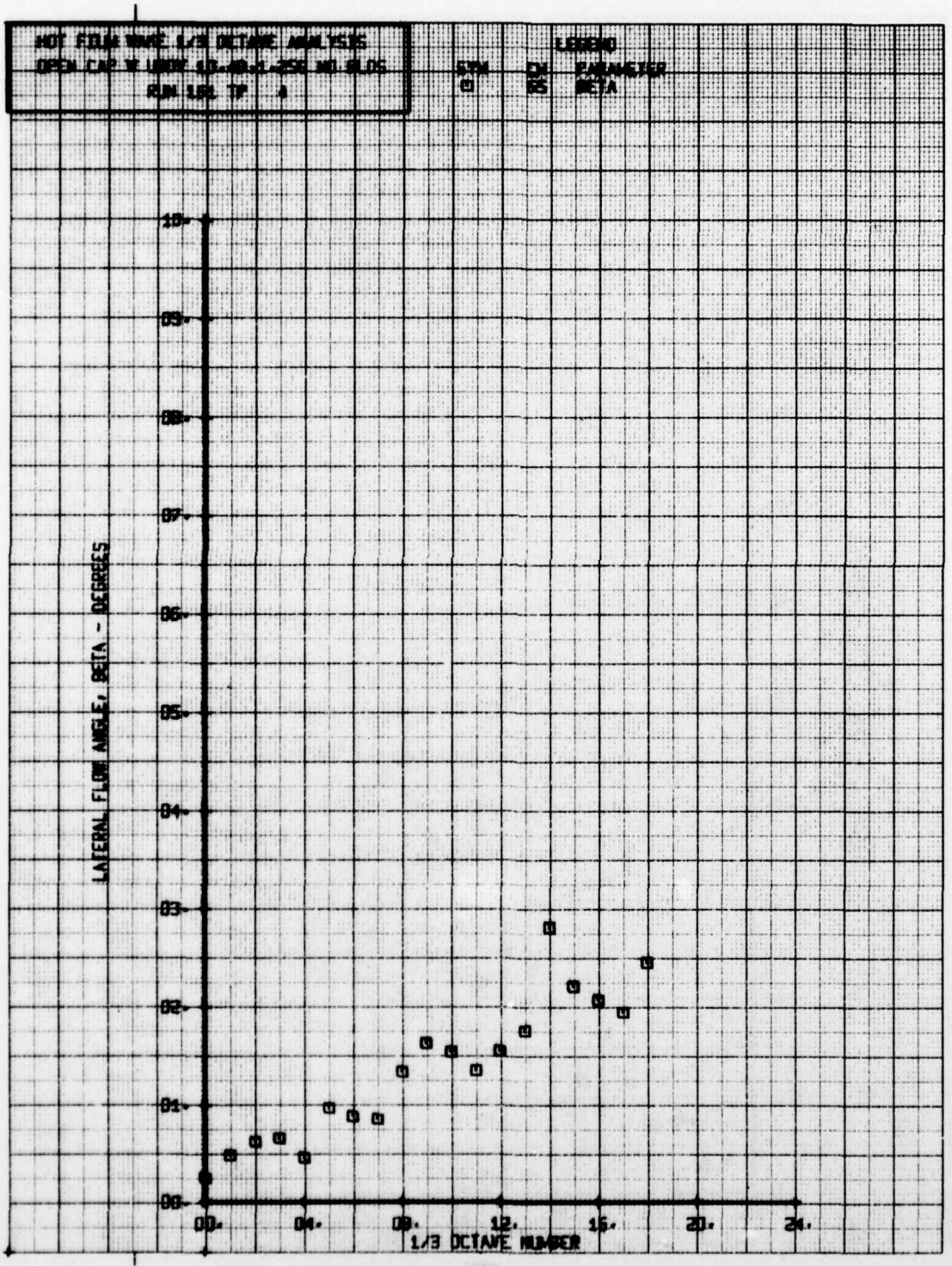

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAV W LEDGE LD-40.1.25S WO BLDG
RUN 161 TP 6
LEGEND
SYM DX PARAMETER
ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

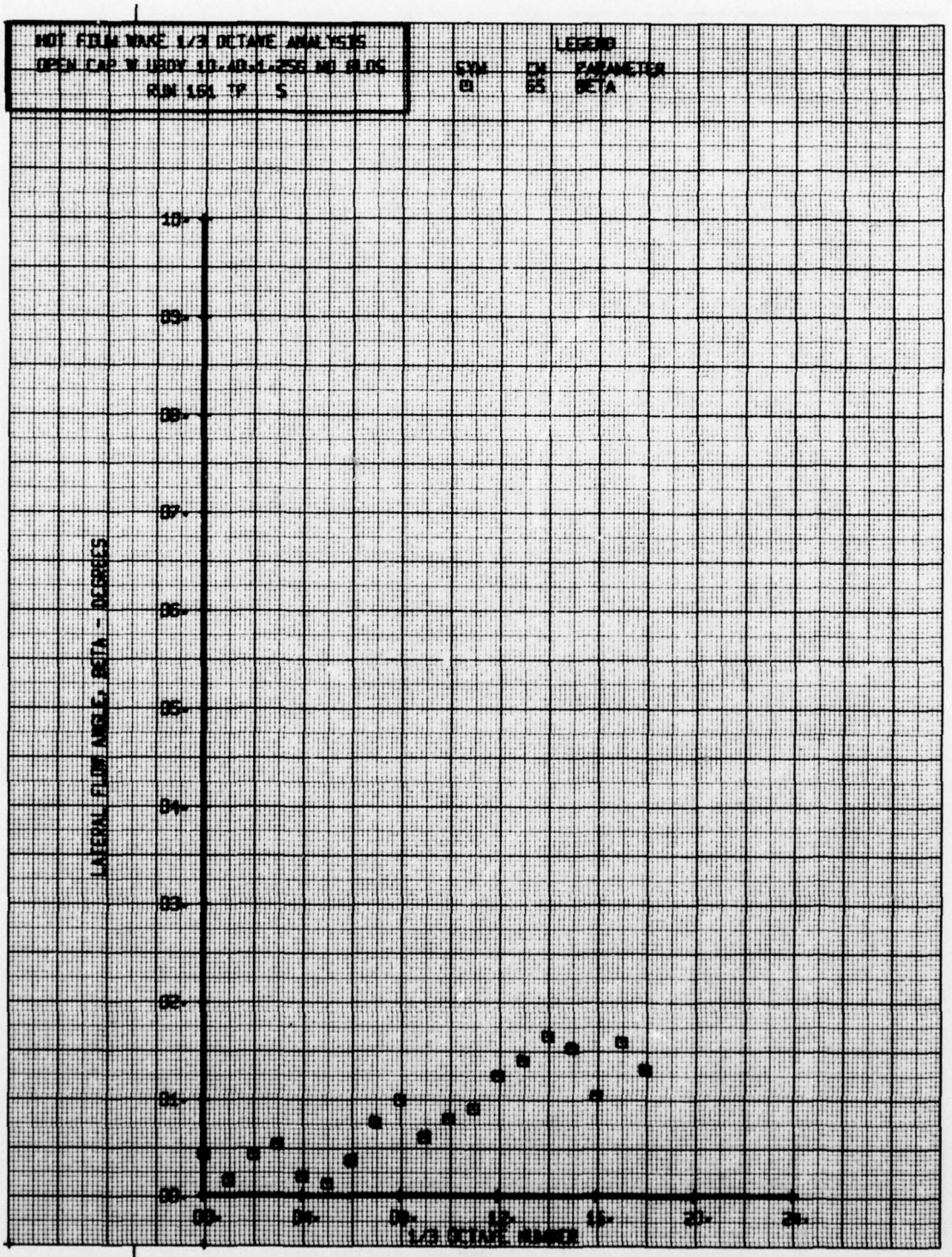

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOT 10-40-1-25C NO BLDS
RUN 161 TP 7
LEGEND
SYM CH PARAMETER
G 66 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

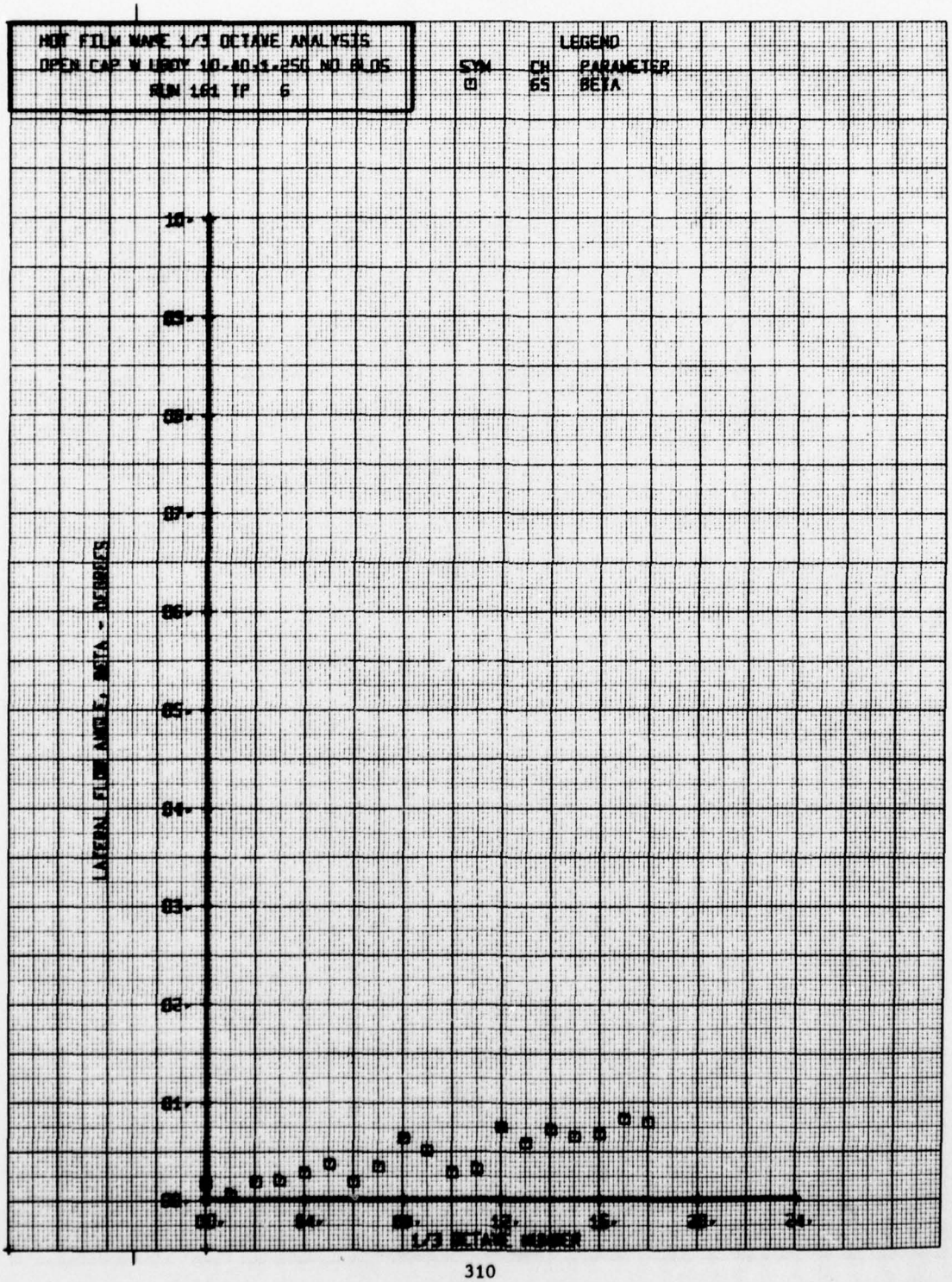

HOT FILM WAKE 1/3 DETAVE ANALYSIS
OPEN CAP W UBDY 10-40,1-256 NO BLDG
RUN 161 TP 8
LEGEND
SYM CH PARAMETER
□ 66 ALPHA
10
05
00
95
90
85
80
75
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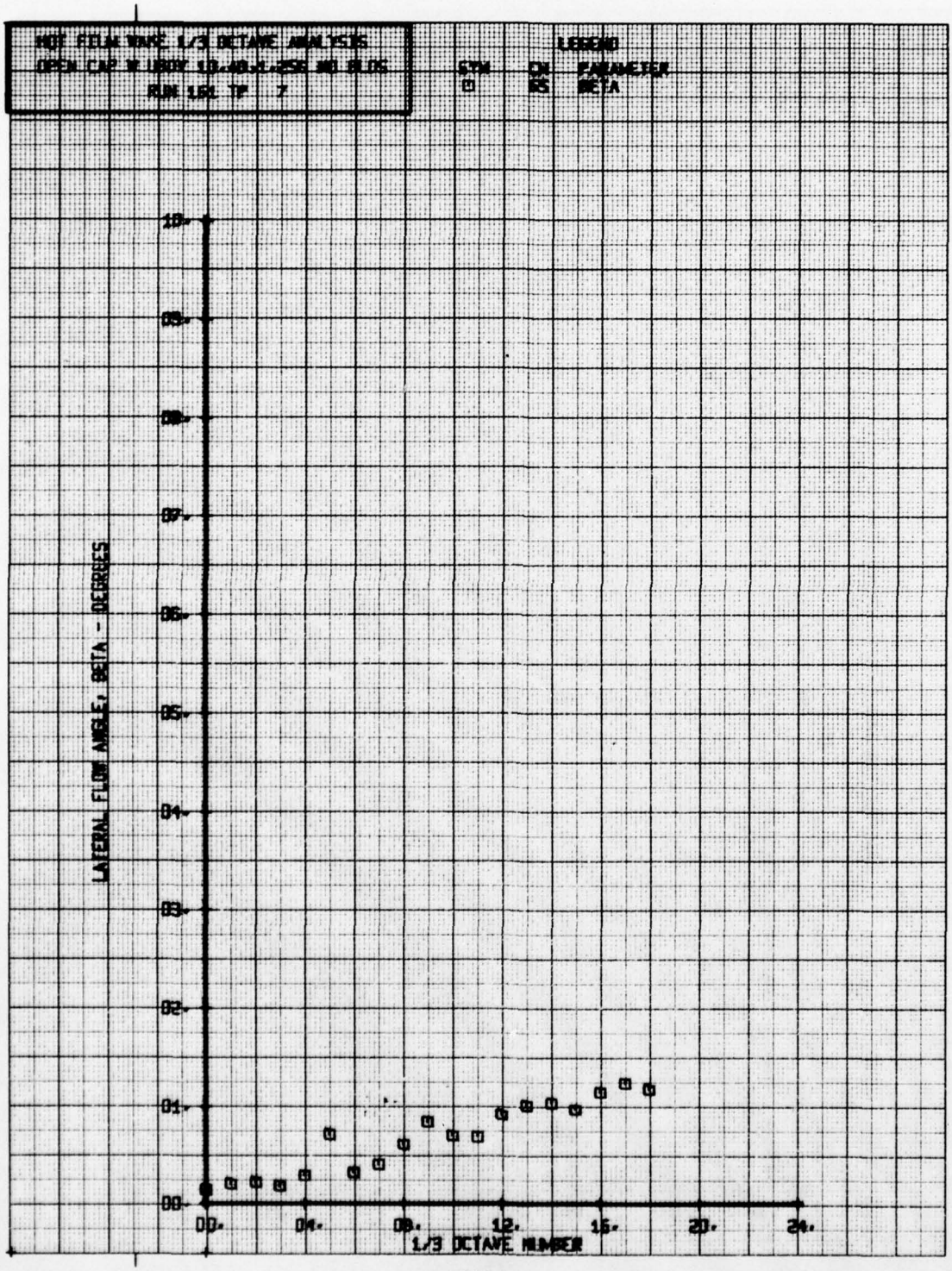

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBODY 10.40.1.256 NO BLOS
RUN 161 TP 2
LEGEND
SYM CH PARAMETER
FS BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER

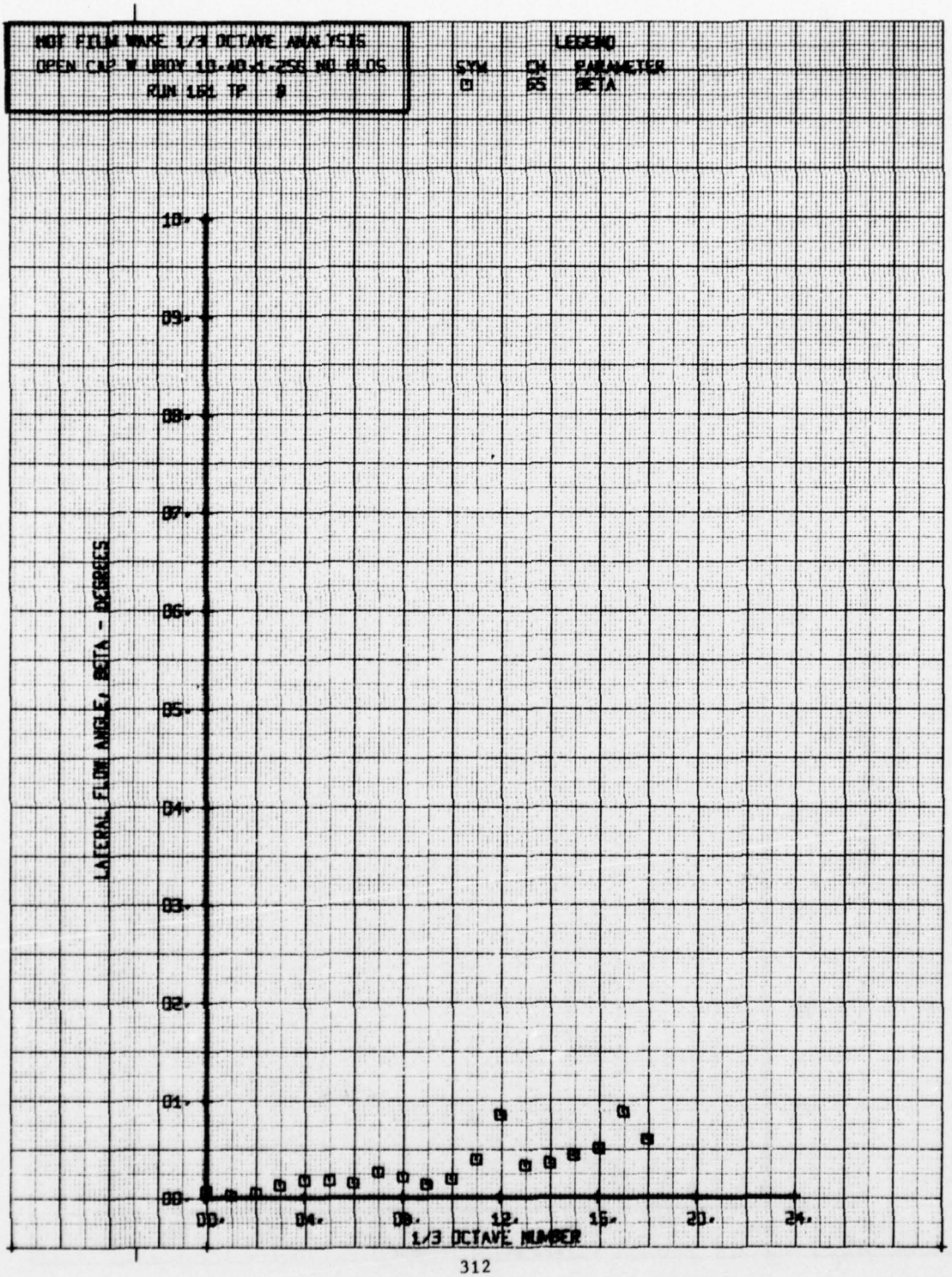

LEGEND
SYM DK PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER

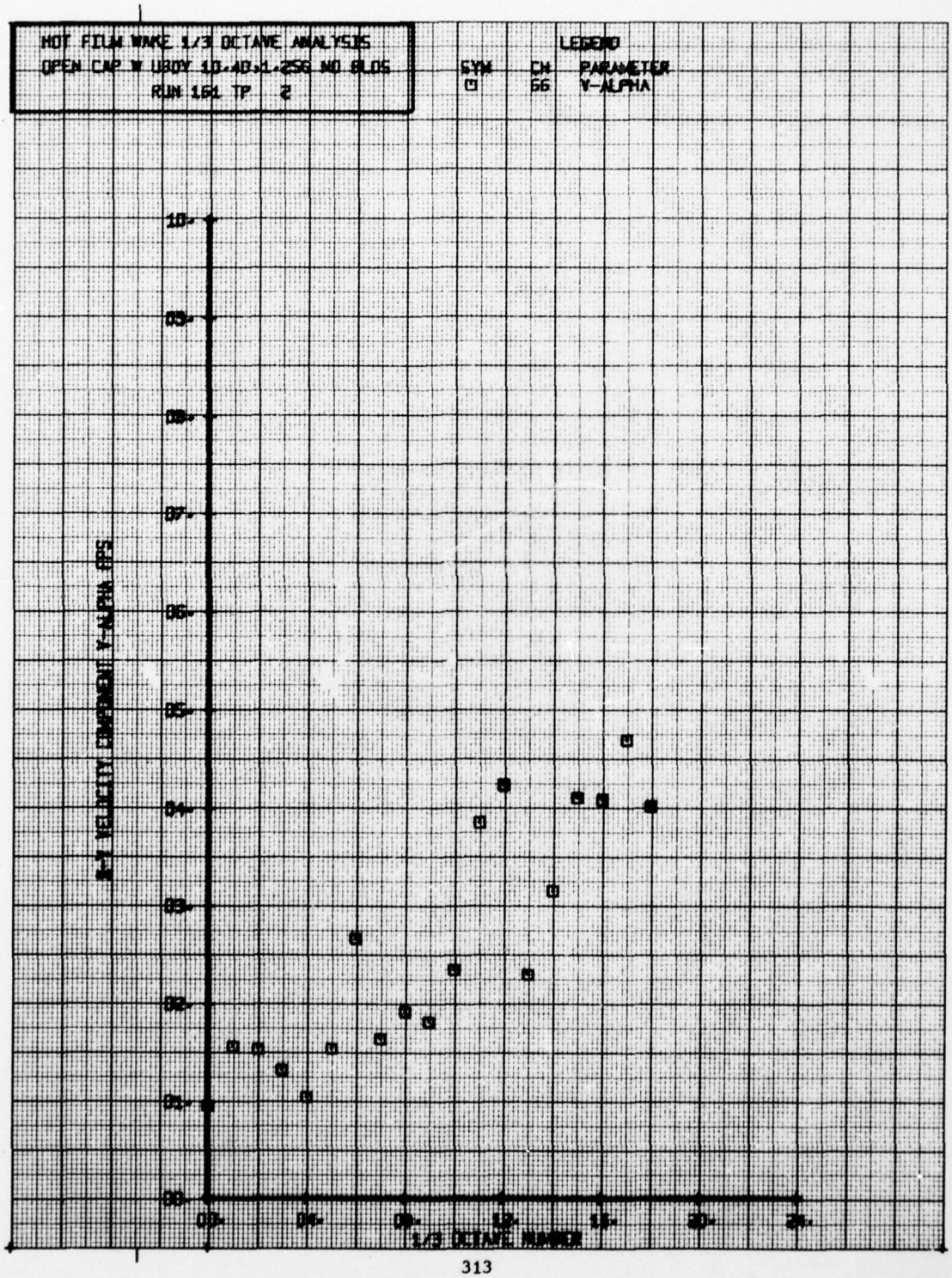

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W LOWER 40-80-1-250 NO BLOS
RUN 158 TP 4
LEGEND
SYM
CH PARAMETER
BS BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER

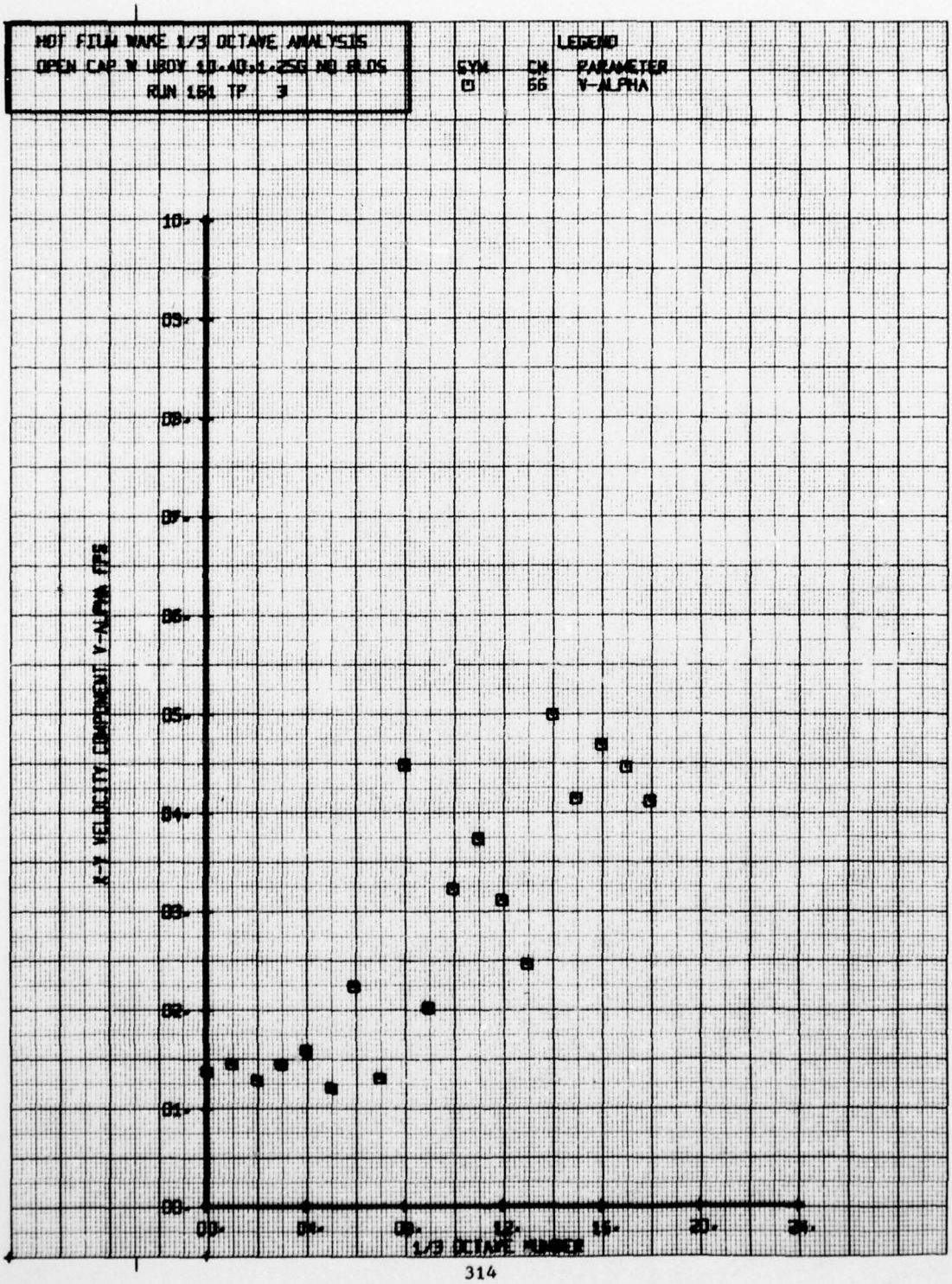

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 10.40.1.256 NO SLOTS
RUN 151 TP 5
LEGEND
CYM CH PARAMETER
01 65 BETA
10
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LAMINAR FLOW ANGL, BETA - DEGREES
1/3 OCTAVE NUMBER

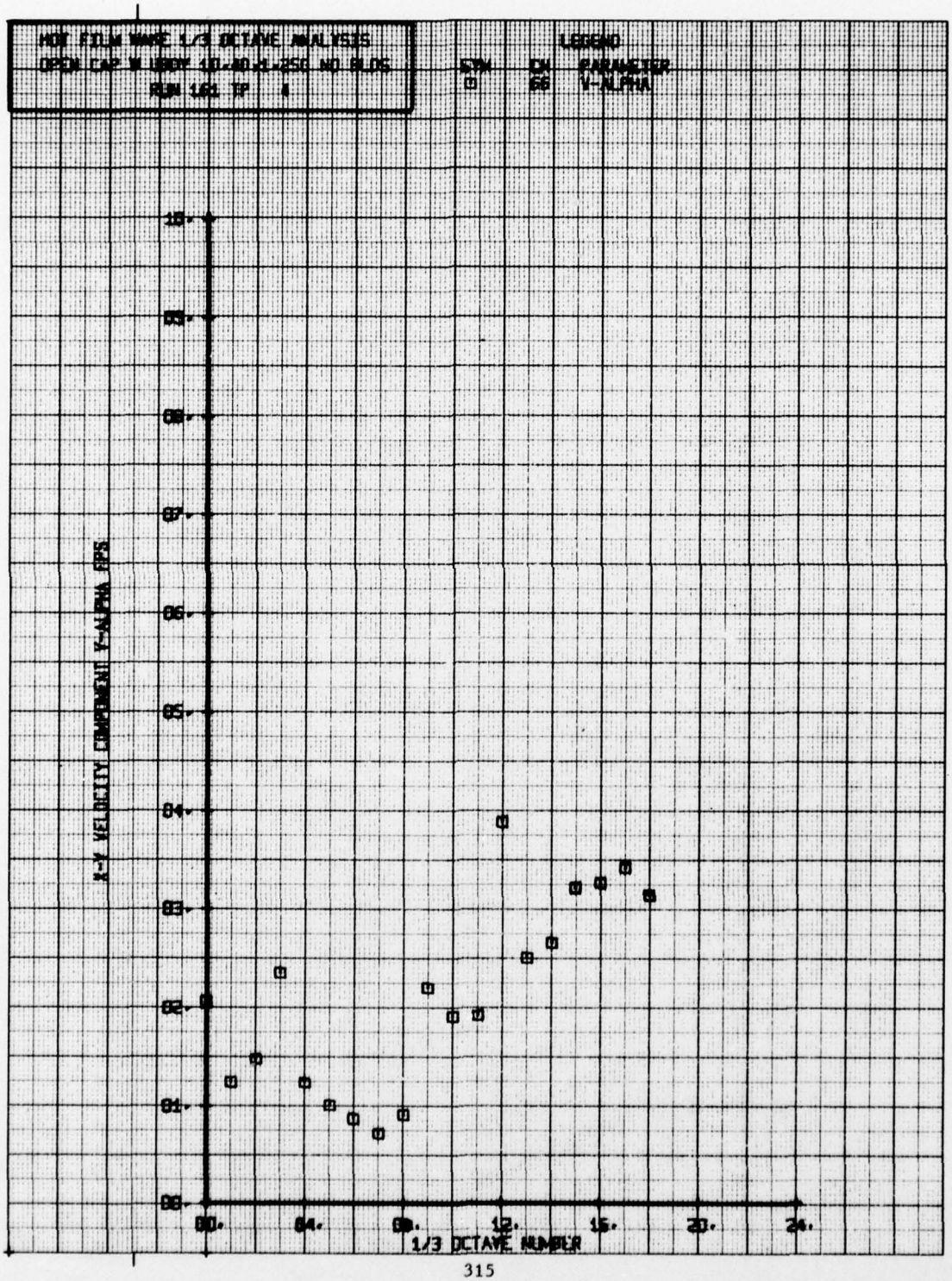

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 10-40-1-25Q NO BLOS
RUN 161 TP 6
LEGEND
SYM CH PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER

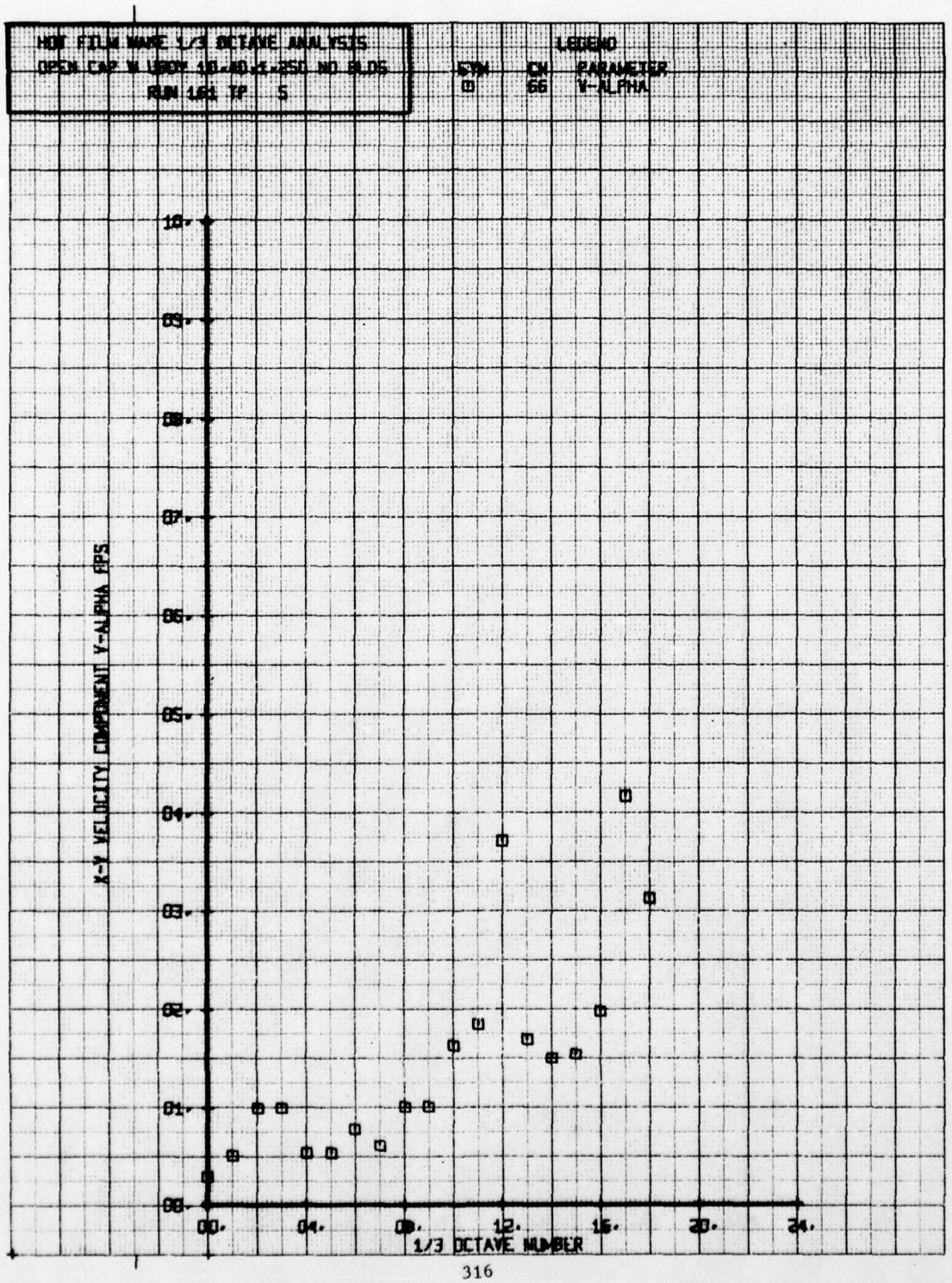

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UROV 10.40,1.25E MD BLDG
RUN 156 TP 7
LEGEND
SYM ON PARAMETER
BS BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER

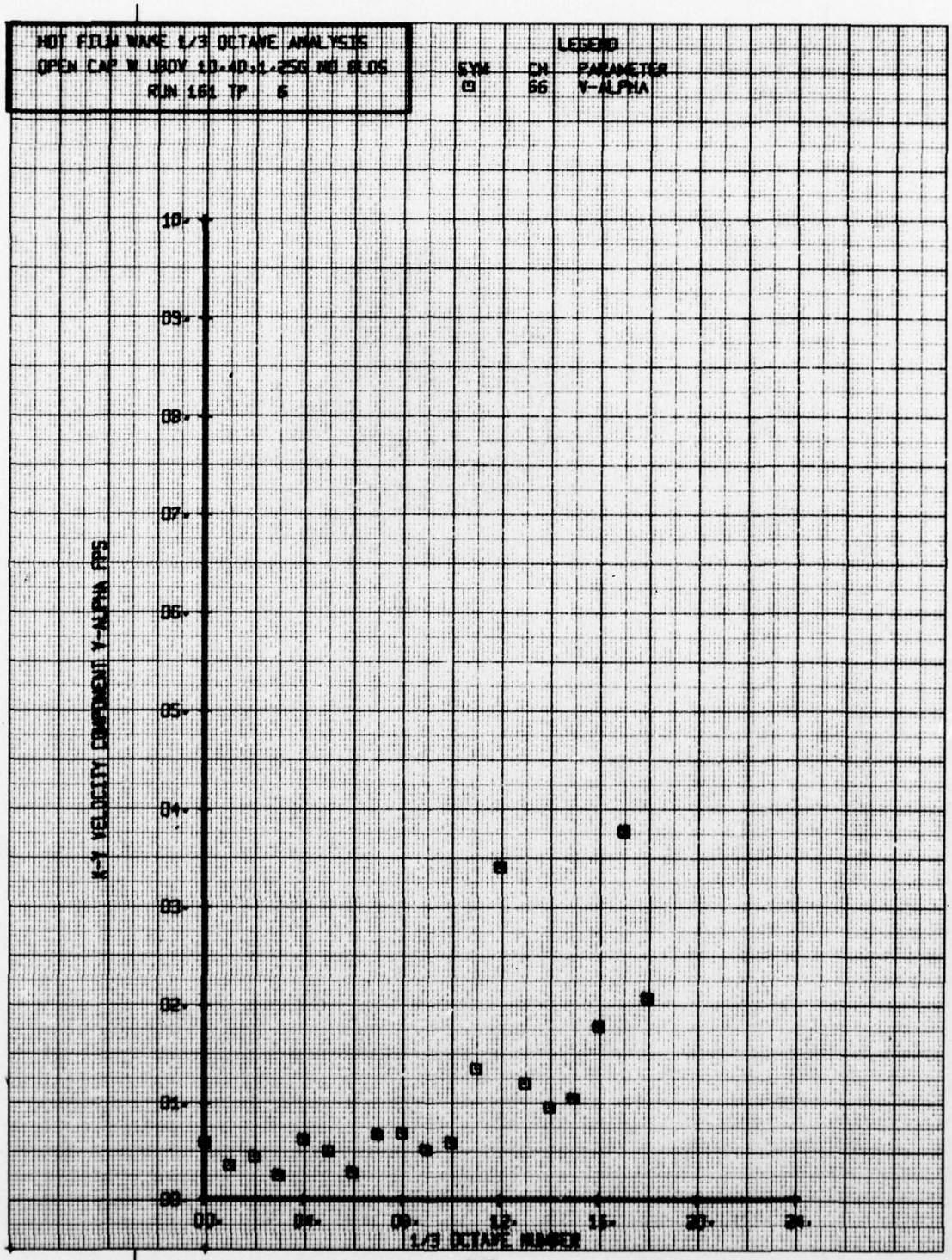

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 10.40-1.25G NO BLOS
RUN 161 TP 8
LEGEND
SYM CH PARAMETER
65 BETA
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LATERAL FLOW ANGLE, BETA - DEGREES
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1/3 OCTAVE NUMBER

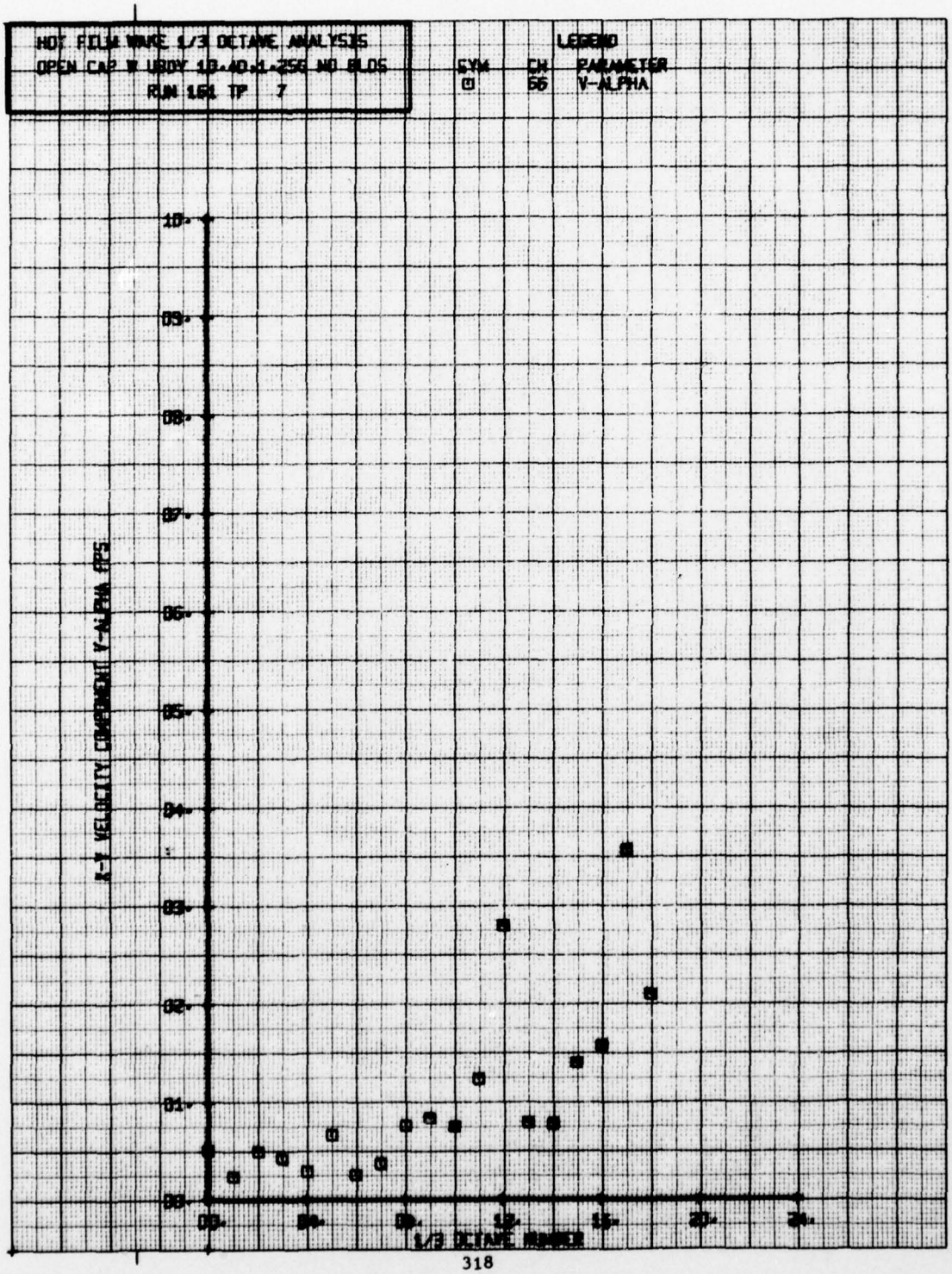

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 10.40.1.256 NO BLOS
RUN 161 TP 2
LEGEND
SYM CH PARAMETER
66 Y-ALPHA
10.
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1/3 OCTAVE NUMBER

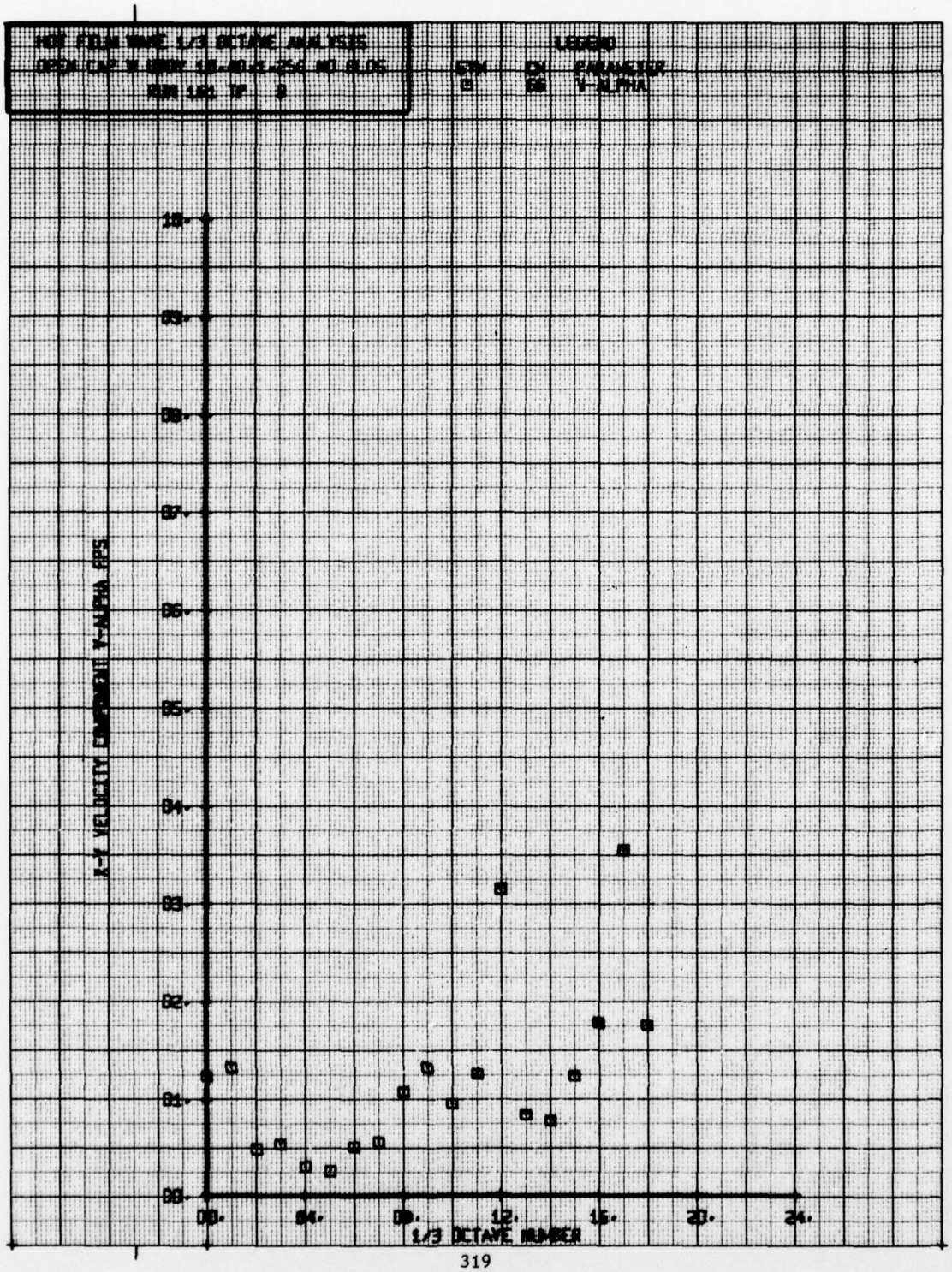

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 10-40-1.25G NO BLOS
RUN 154 TP 3
LEGEND
SYM CH PARAMETER
□ 56 V-ALPHA
10.
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X-Y VELOCITY COMPONENT V-ALPHA FPS
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1/3 OCTAVE NUMBER

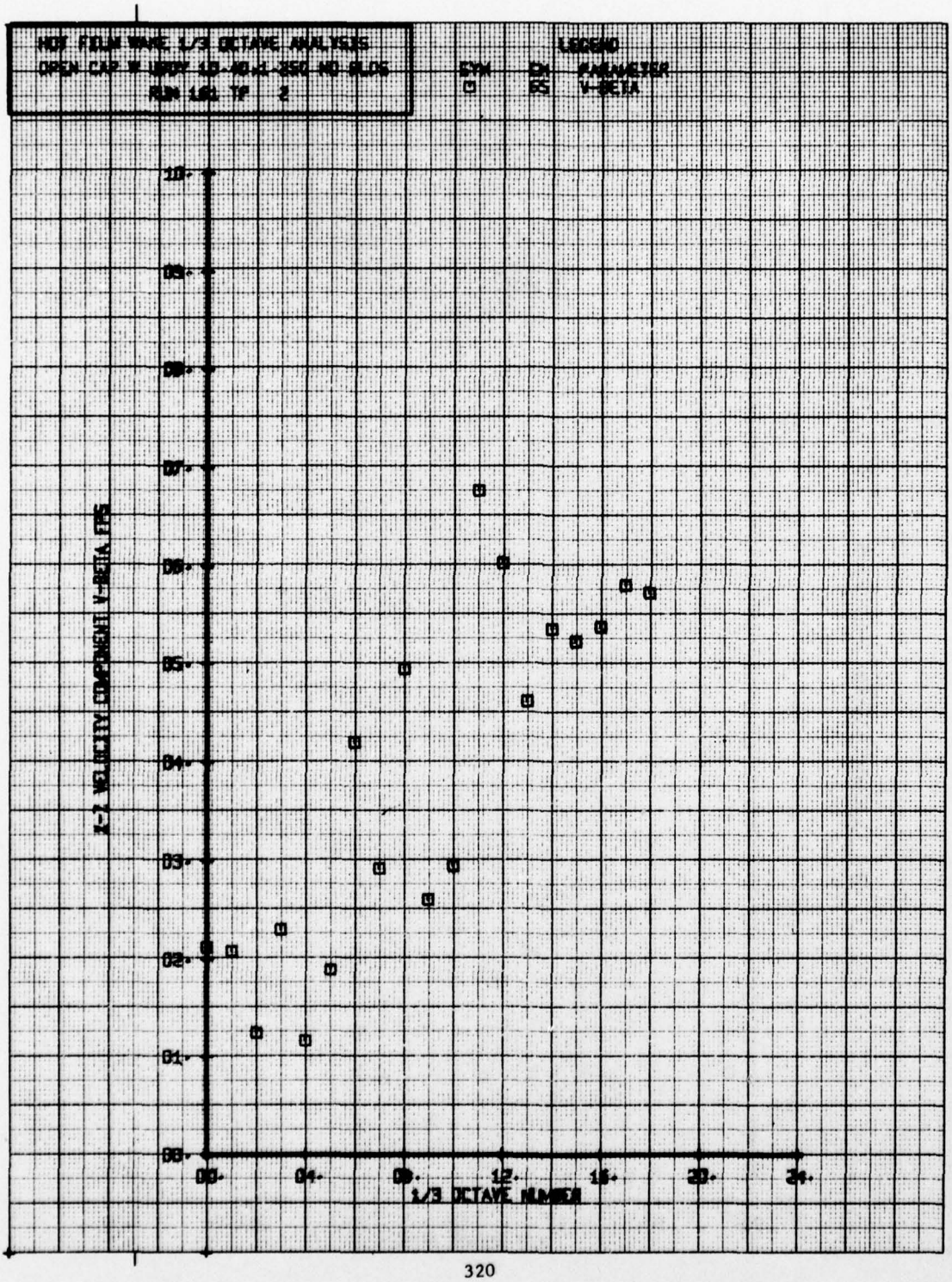

HDR FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBDY 10.40.1.250 NO BLDS
RUN 161 TP 4
LEGEND
SYM DM PARAMETER
66 V-ALPHA
X-Y VELOCITY COMPONENT V-ALPHA FPS
1/3 OCTAVE NUMBER

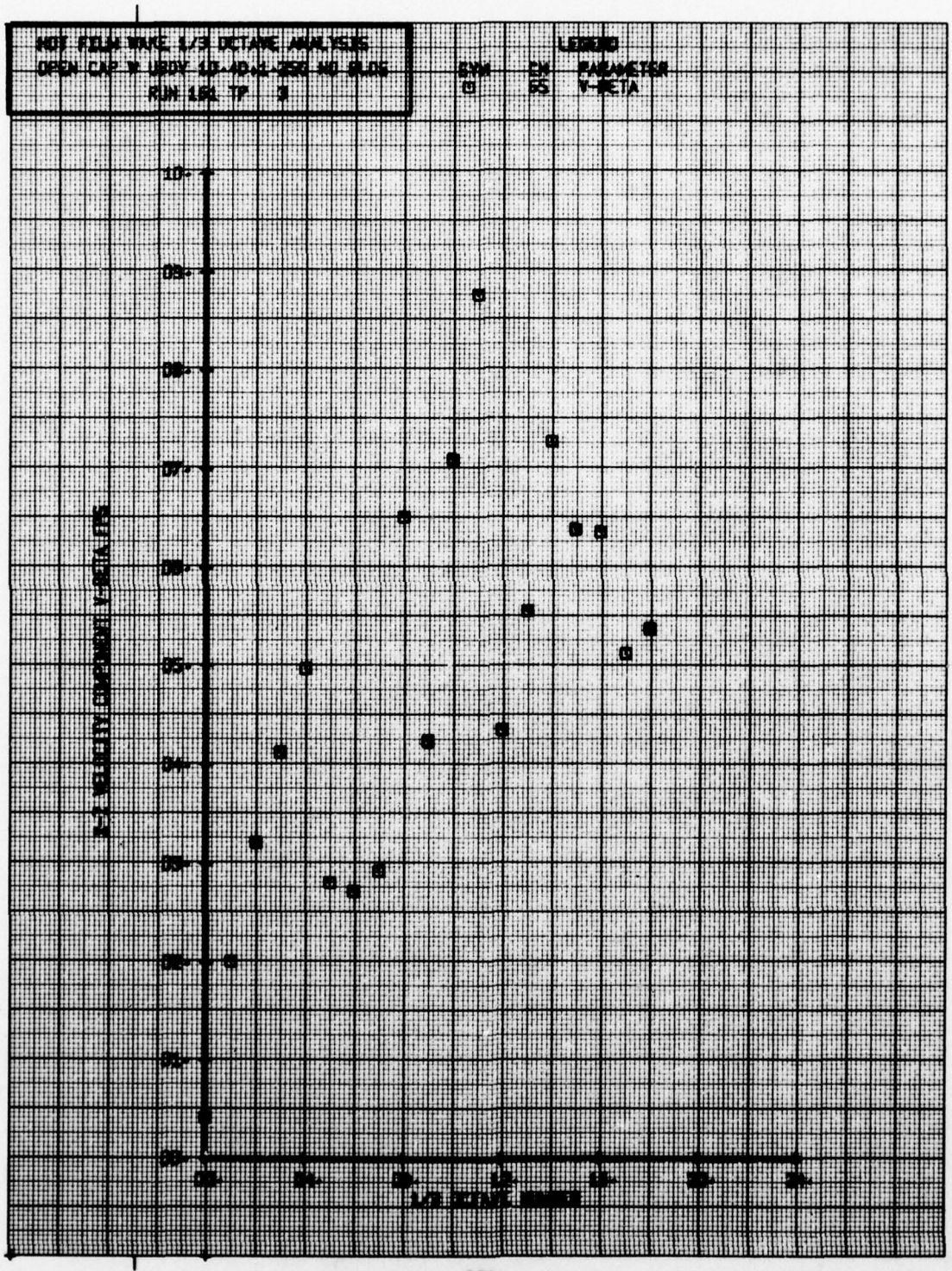

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBDY 10-40,1-250 NO BLDS
RUN 161 TP 5
LEGEND
SYM IDN PARAMETER
66 V-ALPHA
X-Y VELOCITY COMPONENT V-ALPHA FPS
1/3 OCTAVE NUMBER
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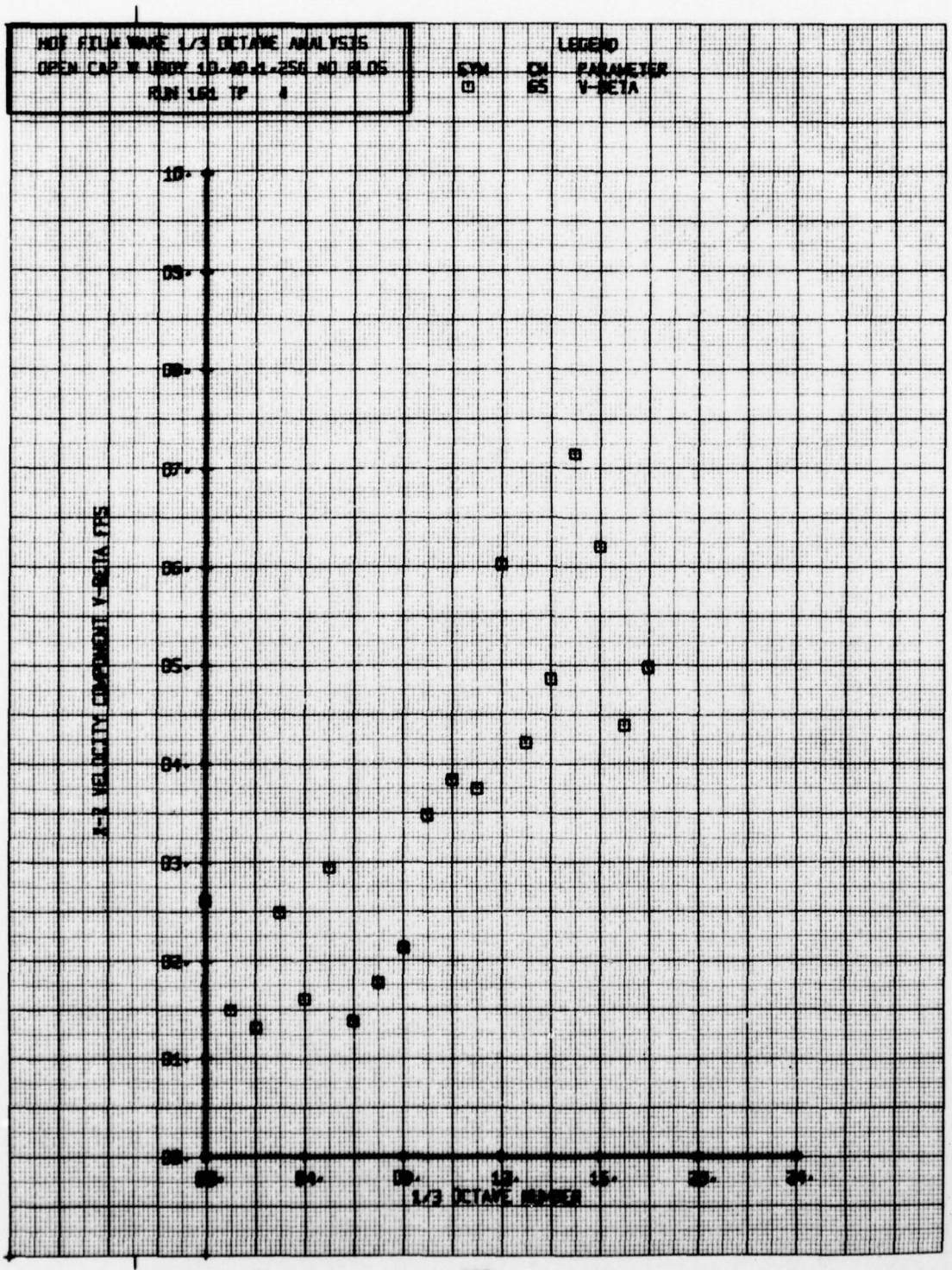

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 10.40.1.25G NO BLOS
RUN 161 TP 6
LEGEND
SYM CH PARAMETER
6 Y-ALPHA
10.
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X-Y VELOCITY COMPONENT Y-ALPHA FPS
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1/3 OCTAVE NUMBER

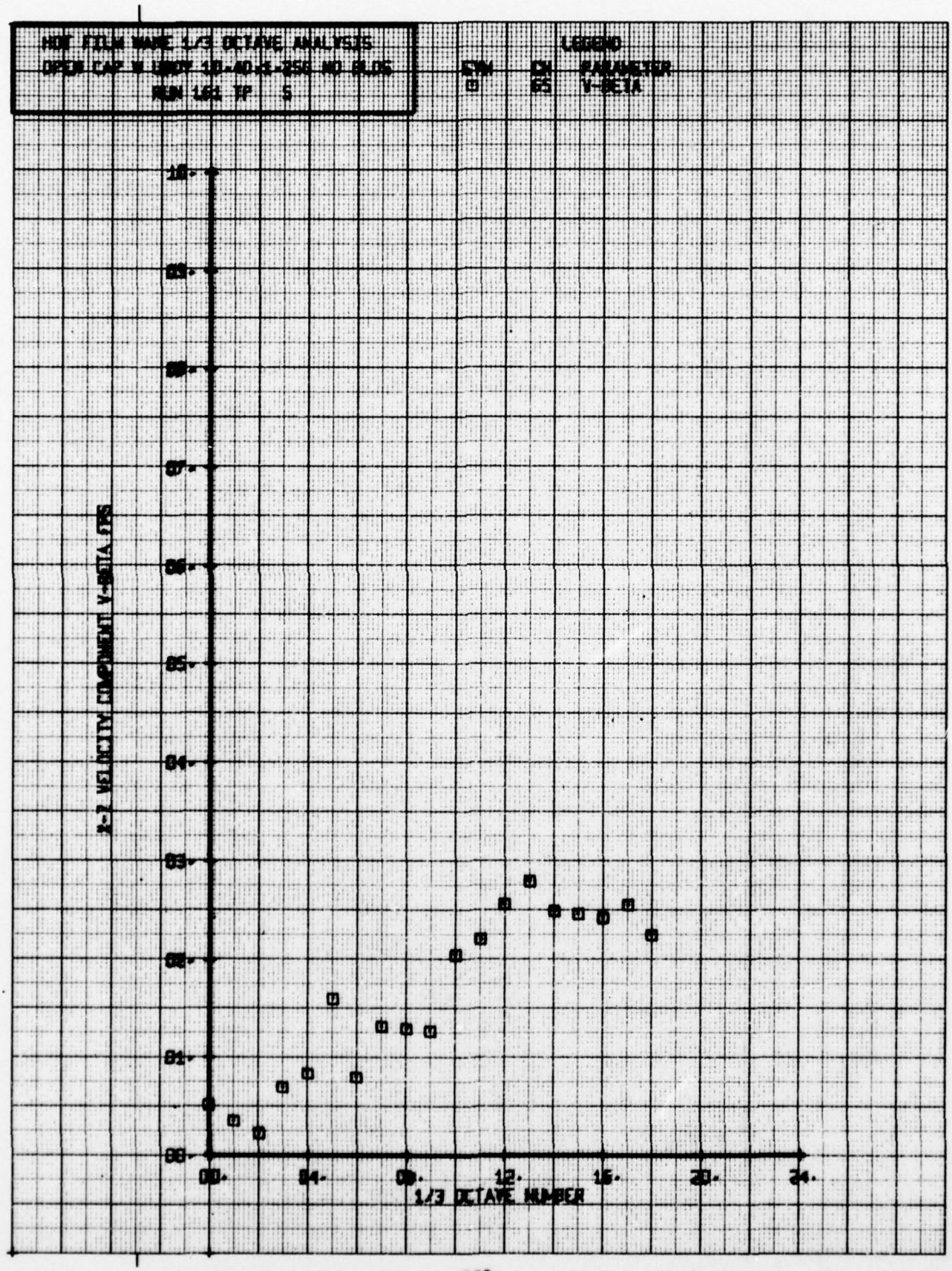

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 18.40,1.25G NO BLOS
RUN 161 TP 7
LEGEND
SYM CH PARAMETER
0 66 V-ALPHA
10.
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X-Y VELOCITY COMPONENT V-ALPHA FPS
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25.
1/3 OCTAVE NUMBER

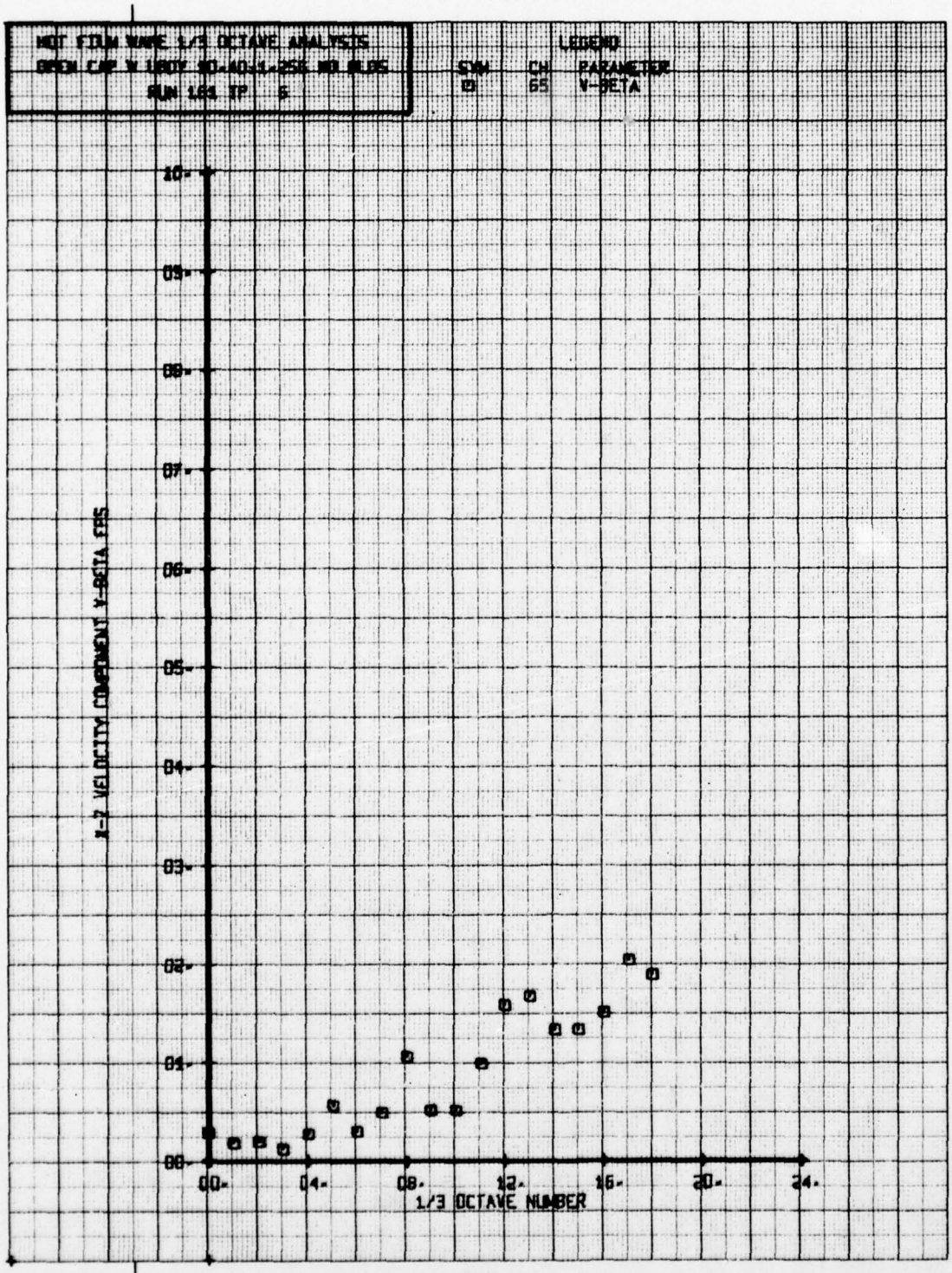

LEGEND
PARAMETER
V-ALPHA
1/3 OCTAVE NUMBER

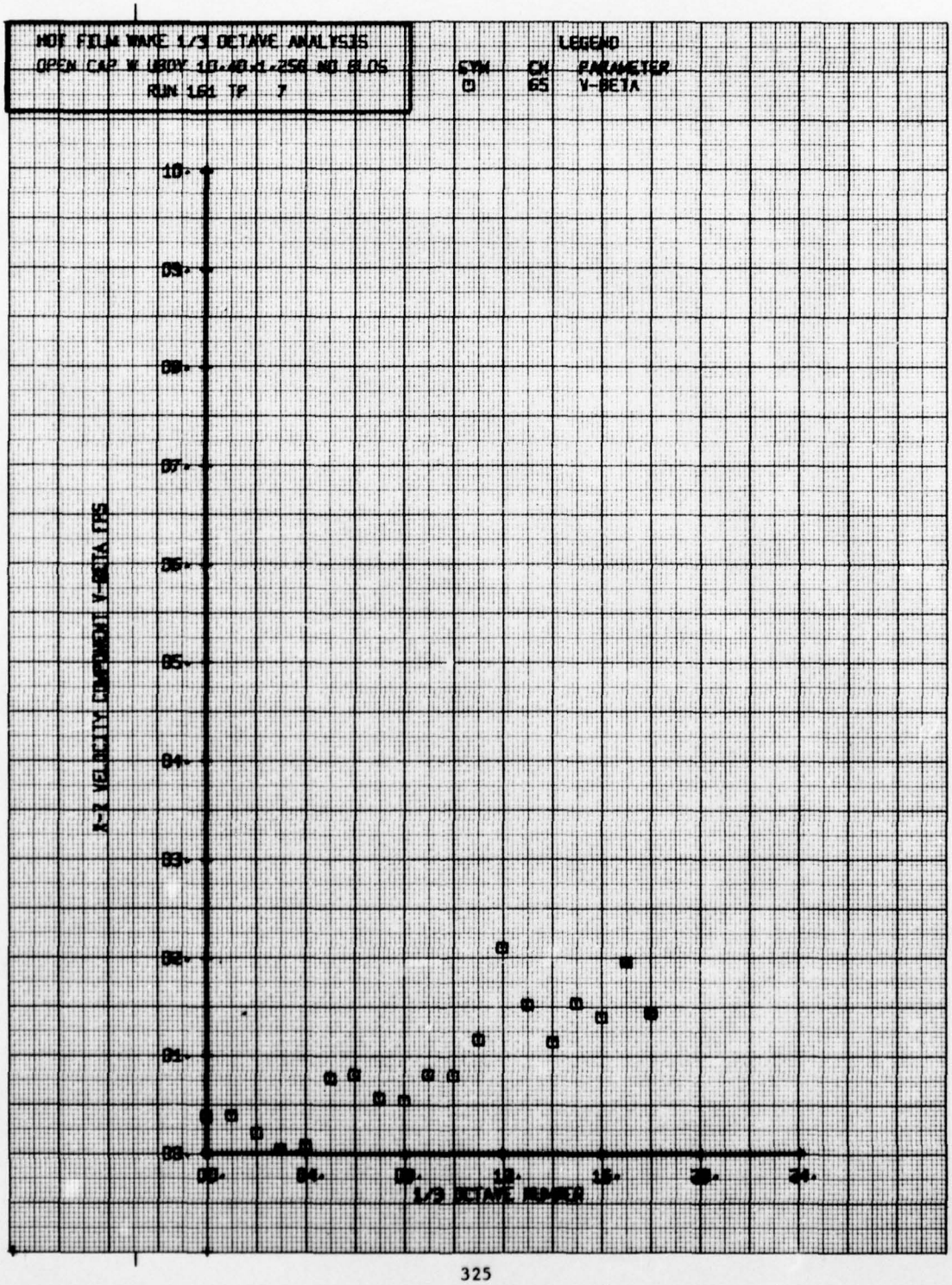

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W BODY 10-40.1-350 NO SLOS
RUN 161 TF 2
LEGEND
SYM PARAMETER
□ 55 V-BETA
X-Z VELOCITY COMPONENT V-BETA FPS
1/3 OCTAVE NUMBER

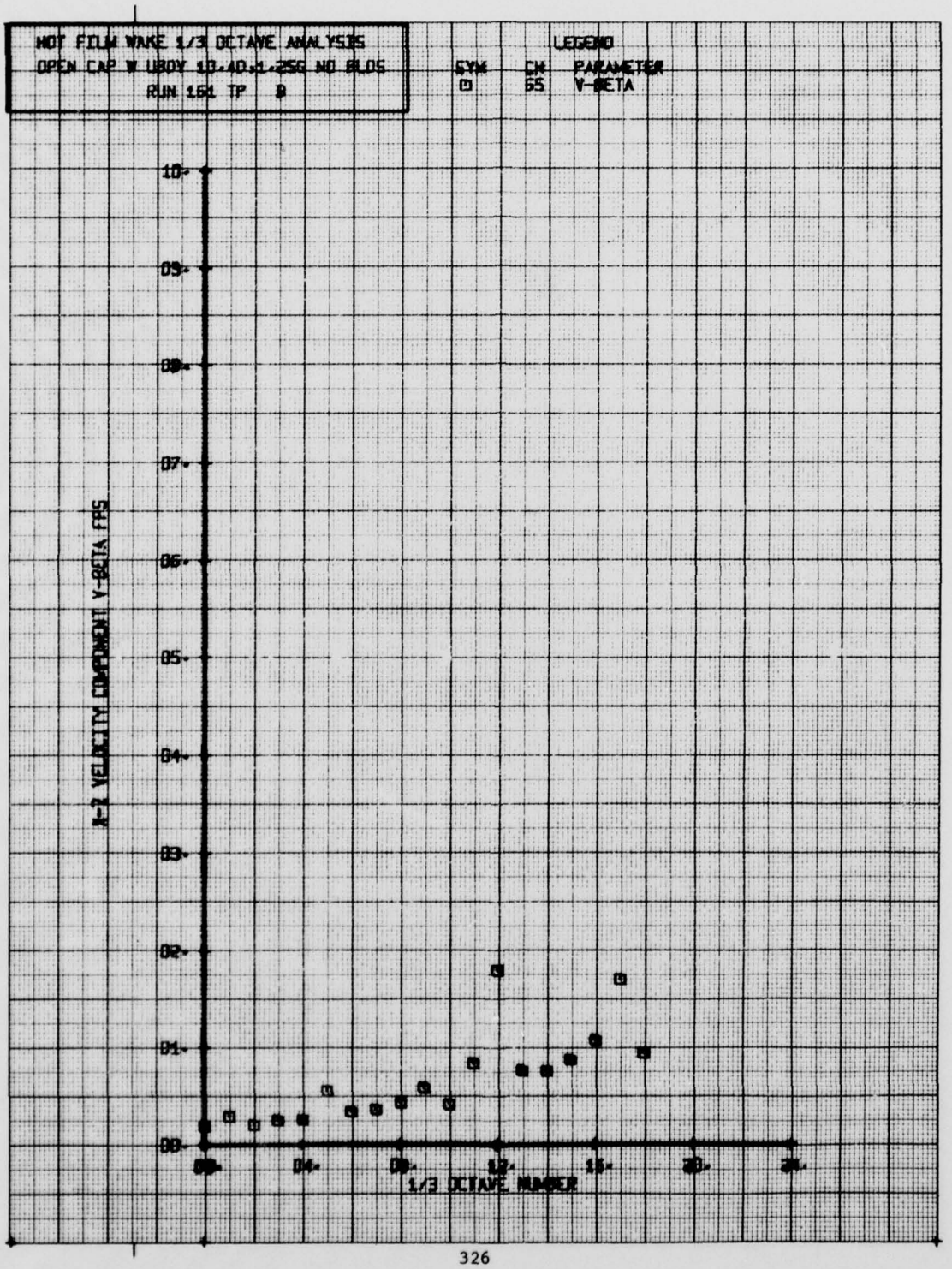

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W USDV LD-AD-41-250 NO BLDS
RUN 1&L TP 3
LEGEND
SYM PM PARAMETER
□ 55 V-BETA
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
1/3 OCTAVE BANDS

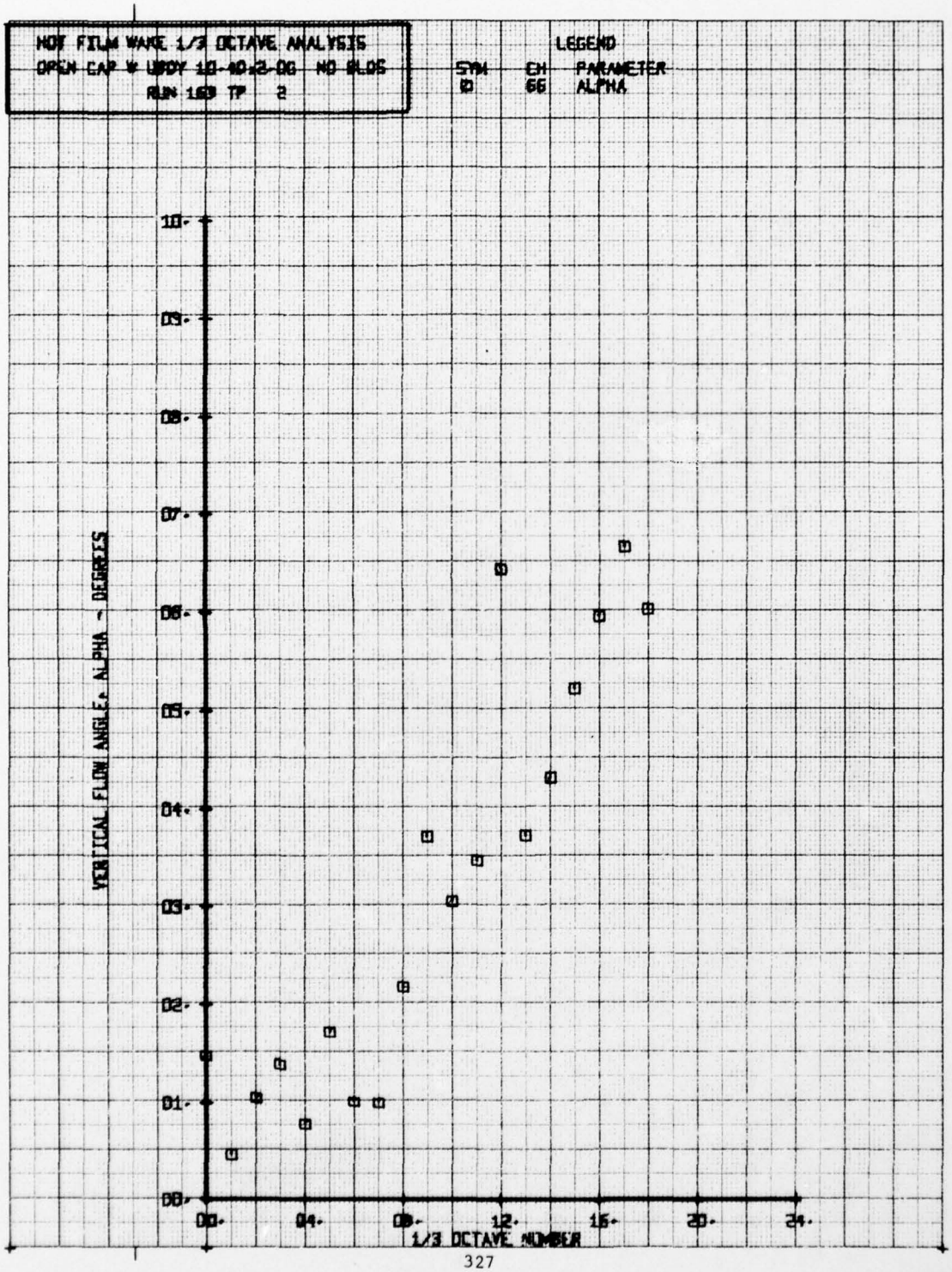

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOT 10.40.1.256 NO BLOS
RUN 160 TP 4
LEGEND
SYM CH PARAMETER
65 V-BETA
J-2 VELOCITY COMPONENT V-BETA FPS
1/3 OCTAVE NUMBER

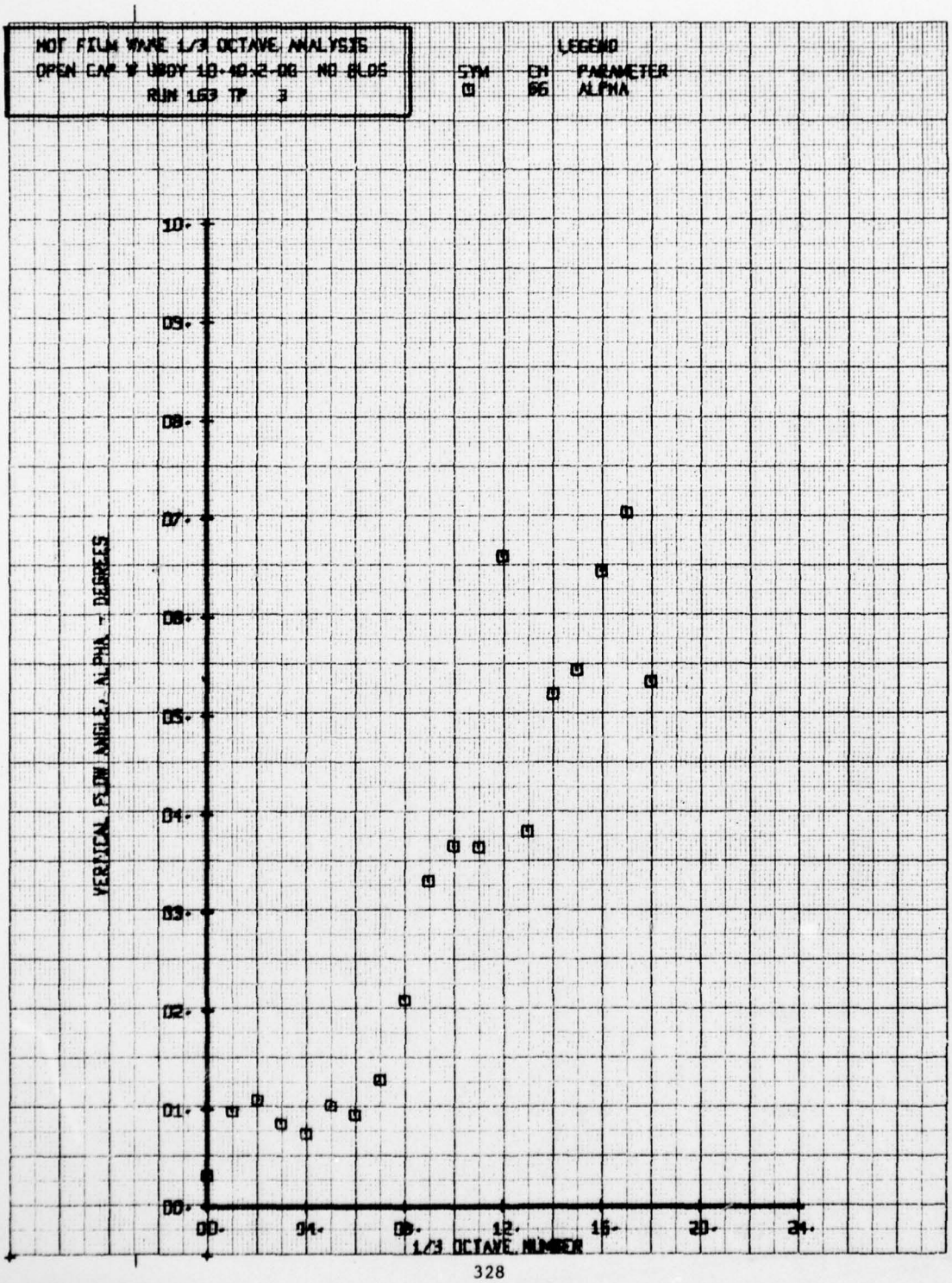

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W LOWPY 10-40-5-256 NO BLOS
RUN 161 TP 5
LEGEND
ICHN CH PARAMETER
1 65 V-BETA
1/3 OCTAVE NUMBER

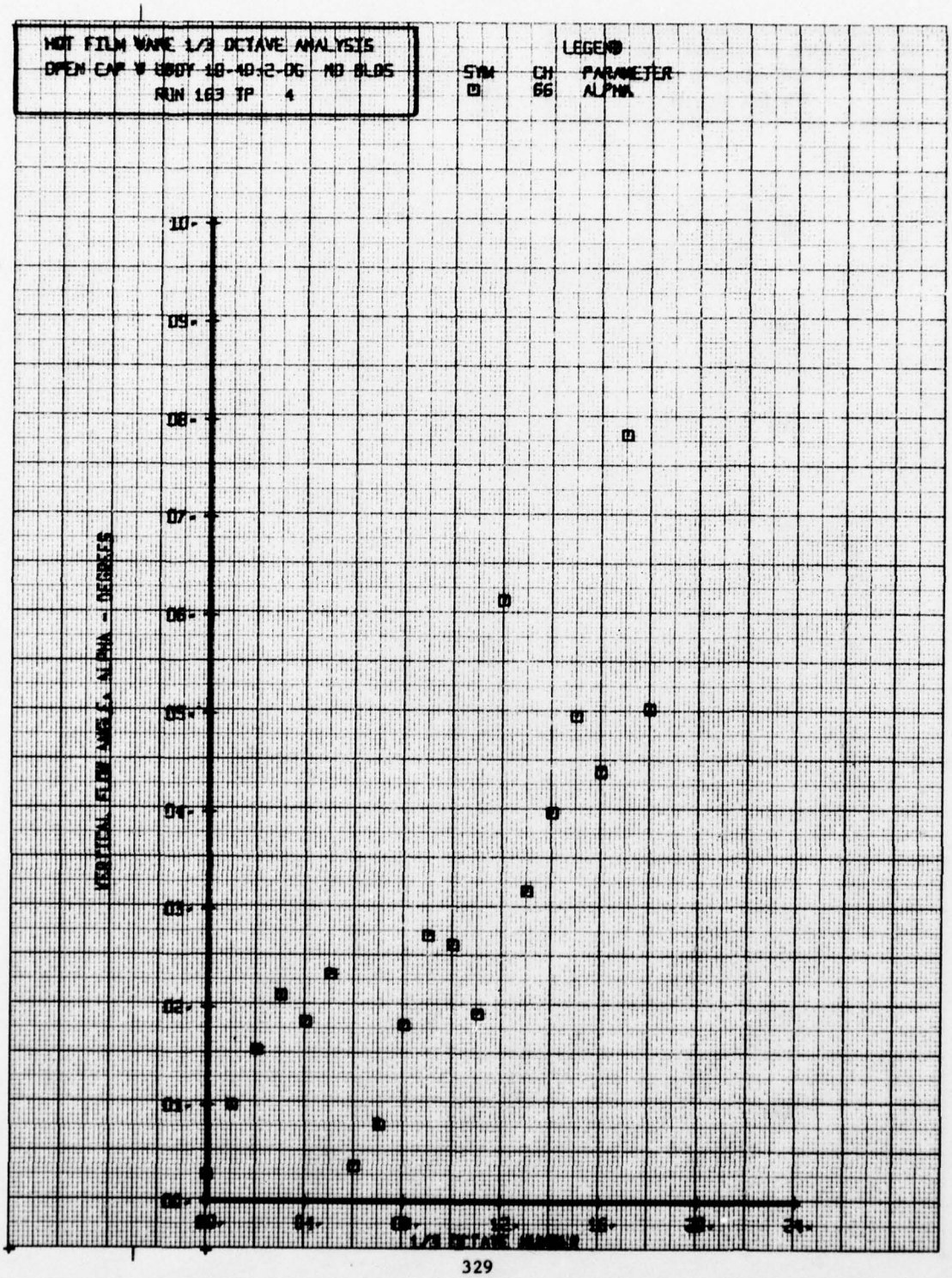

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
RUN 184 TP 6
LEGEND
SYM CH PARAMETER
65 V-BETA
10.
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1/3 OCTAVE NUMBER

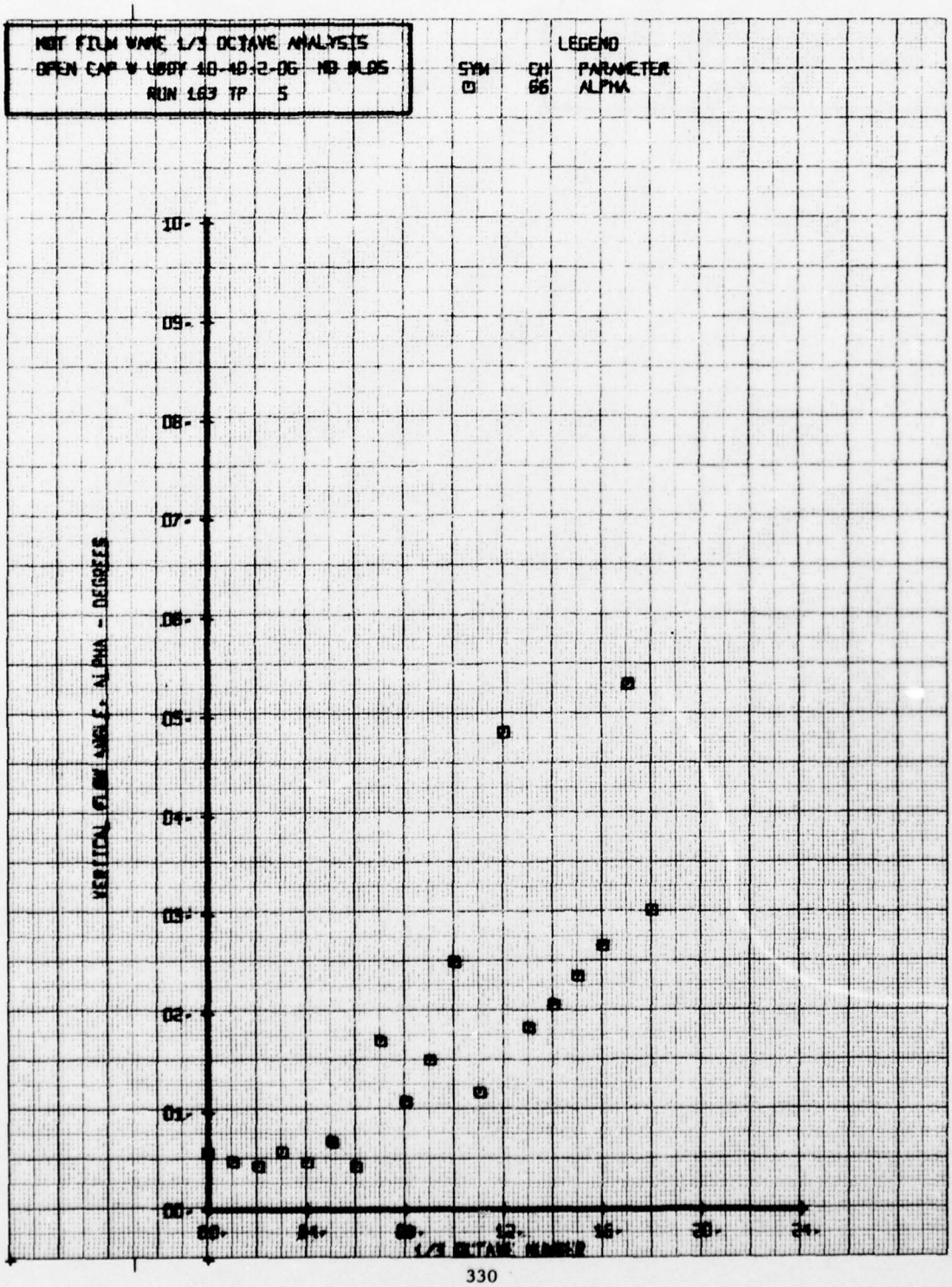

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 10.40.1.25R NO BLOS
RUN 161 TP 7
LEGEND
SYM CH PARAMETER
65 V-BETA
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
A-2 VELOCITY COMPONENT V-BETA,FPS
1/3 OCTAVE NUMBER

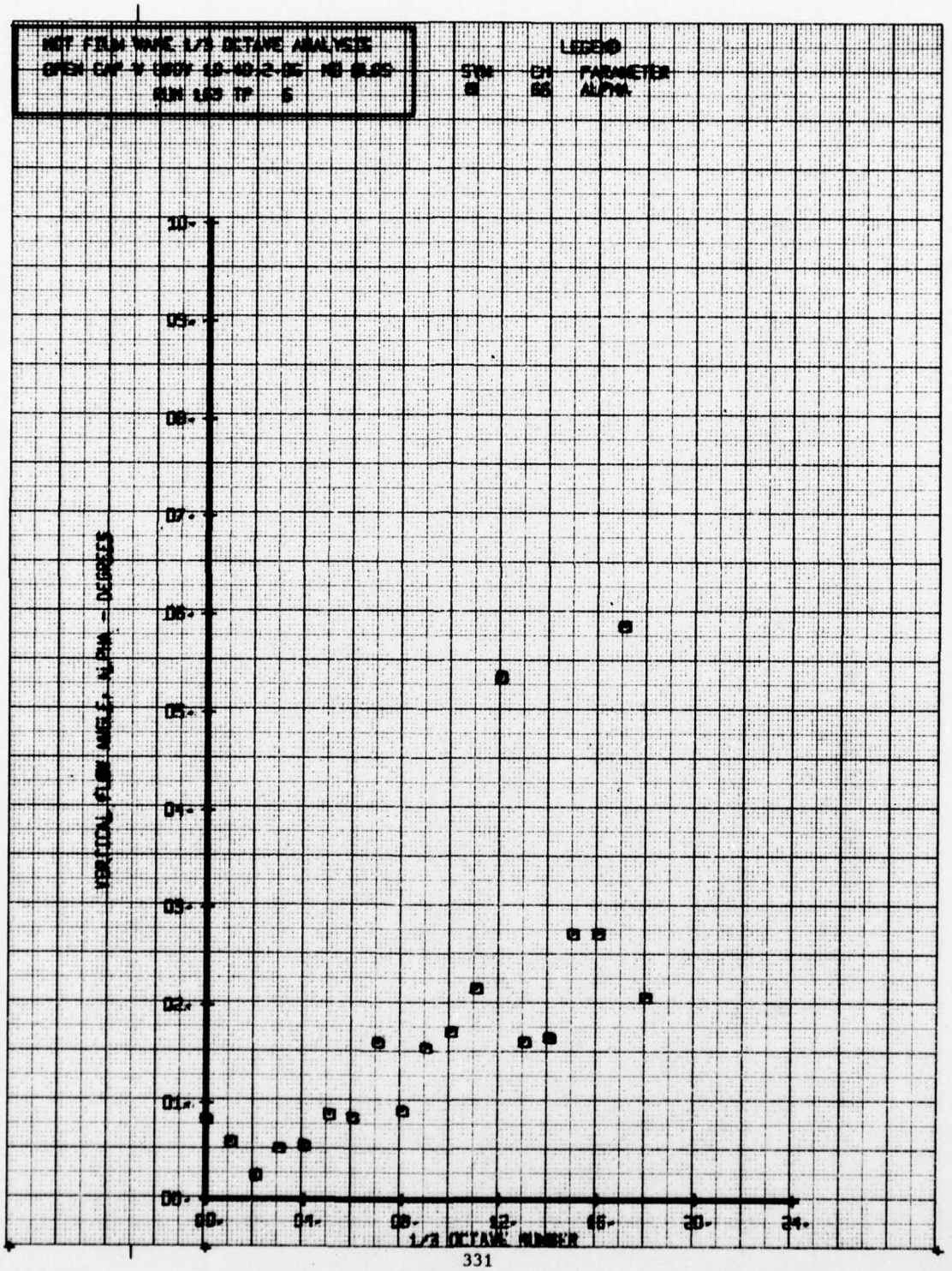

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 10.4D,1.25G NO BLOS
RUN 161 TP 9
LEGEND
SYM CM PARAMETER
□ 65 V-BETA
10.
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X-1 VELOCITY COMPONENT V-BETA FPS
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1/3 OCTAVE NUMBER

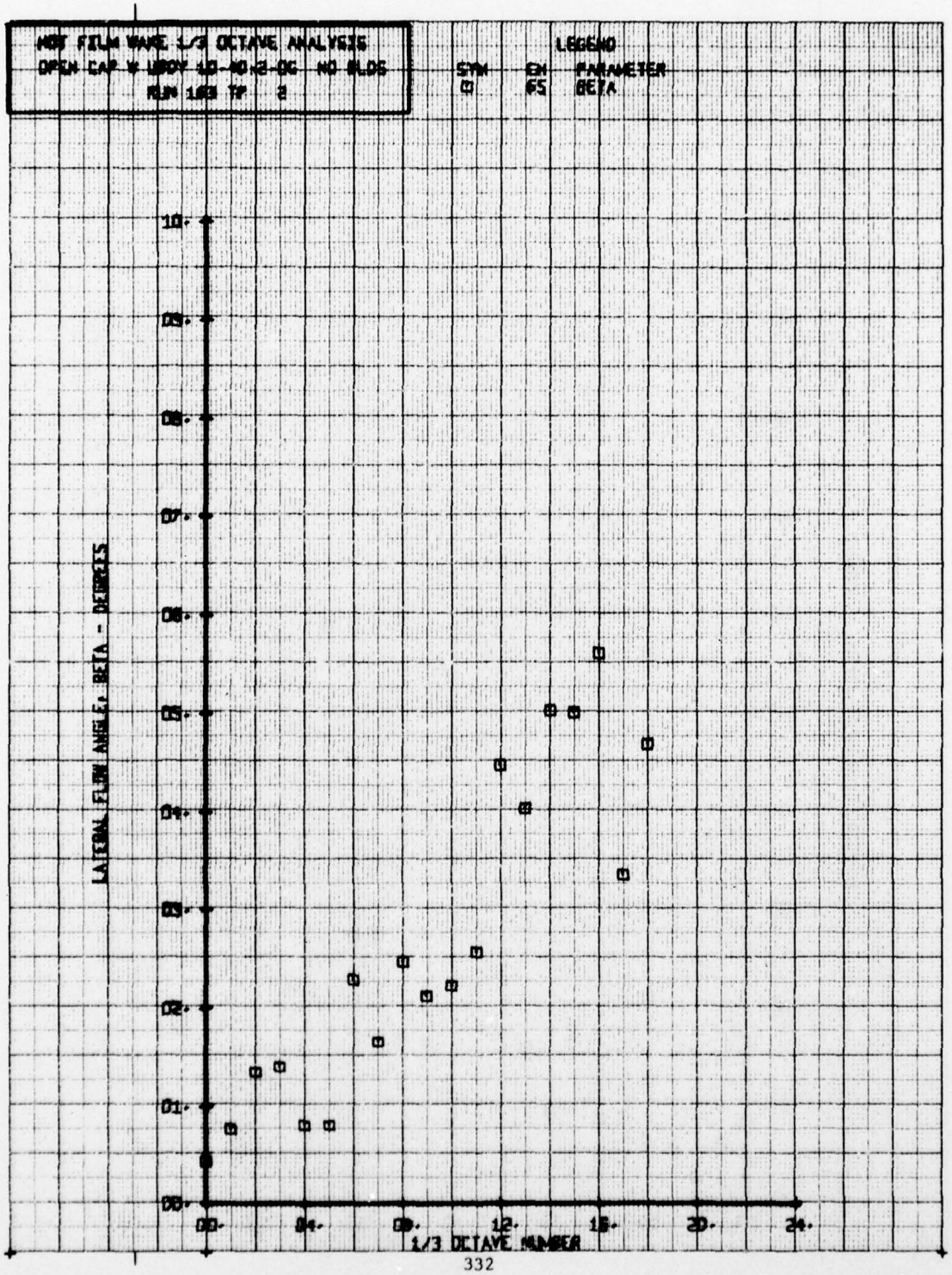

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W BODY 10-40.2-06 NO BLDS
RUN 169 TP 2
LEGEND
SYM CH PARAMETER
0 66 ALPHA
10.
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VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

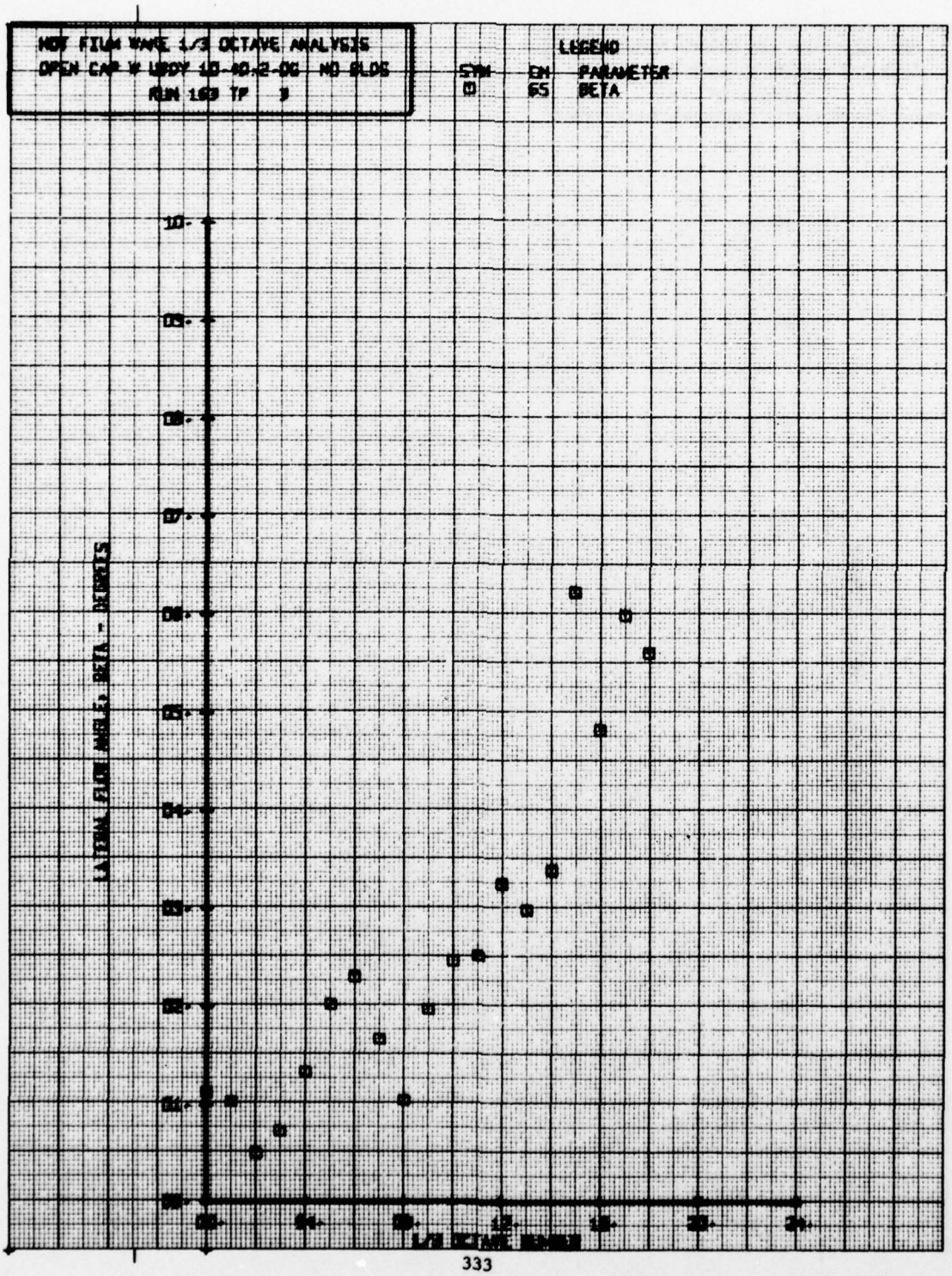

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 18-40-2-08 NO BLDS
RUN 163 TP 3
LEGEND
SYM EM PARAMETER
66 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
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24.
1/3 OCTAVE NUMBER

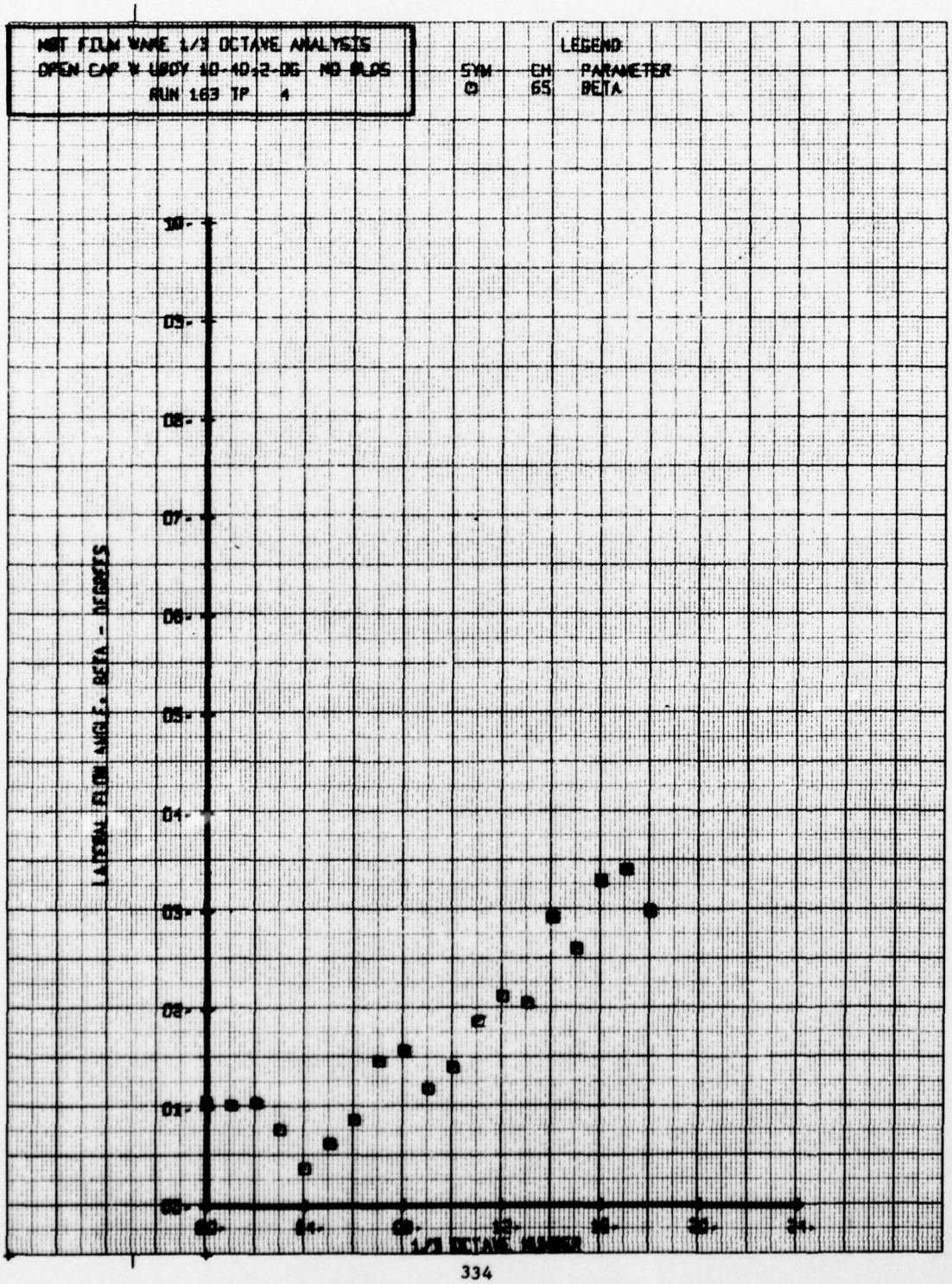

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W BODY 18-40-2-DG NO BLDS
RUN 163 TP 4
LEGEND
SYM CH PARAMETER
66 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
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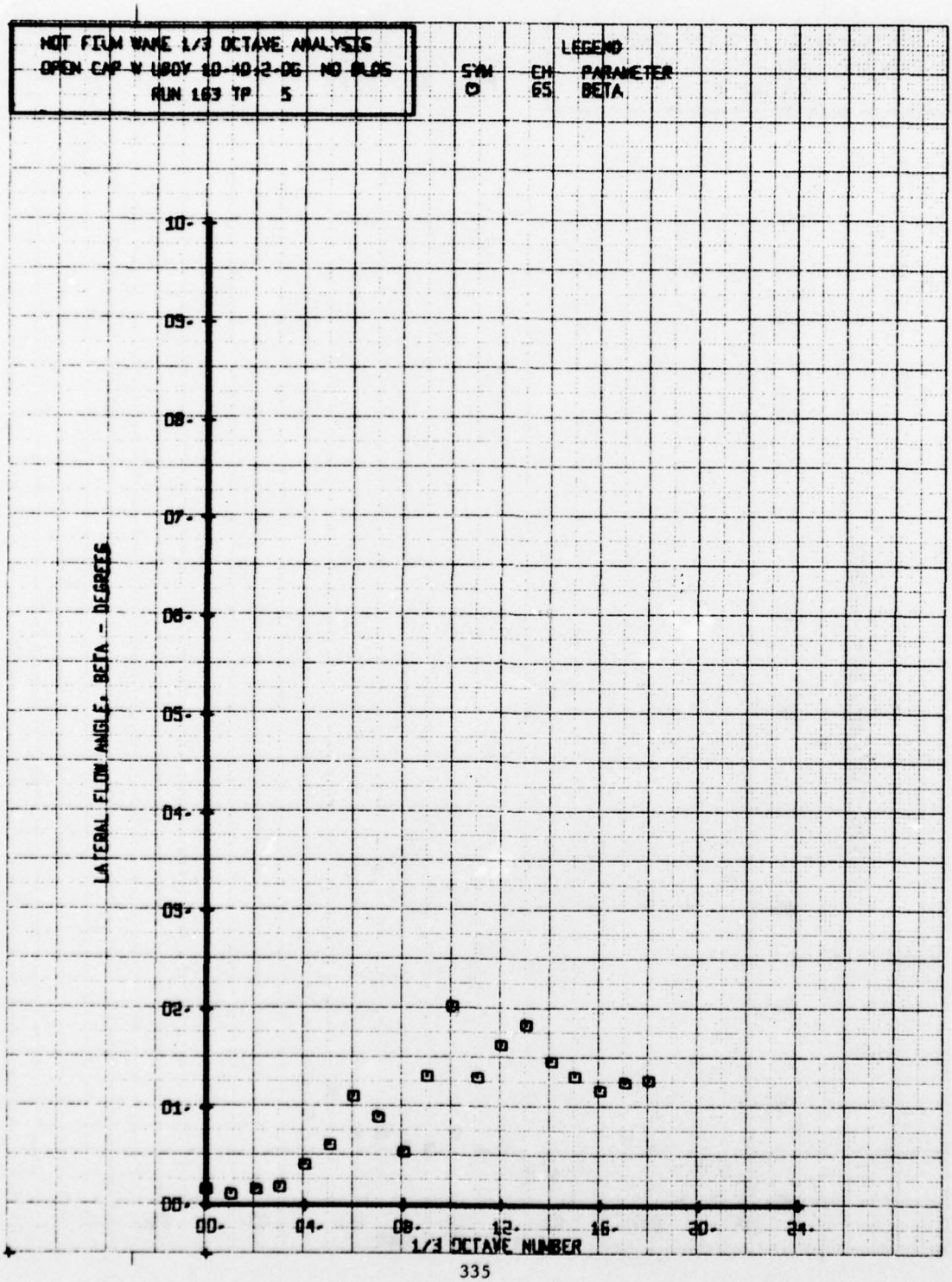

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP V UBDY 40-40-2-06 NB BLDS
RUN 103 TP 5
LEGEND
SYM CH PARAMETER
06 ALPHA
10-
09-
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VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

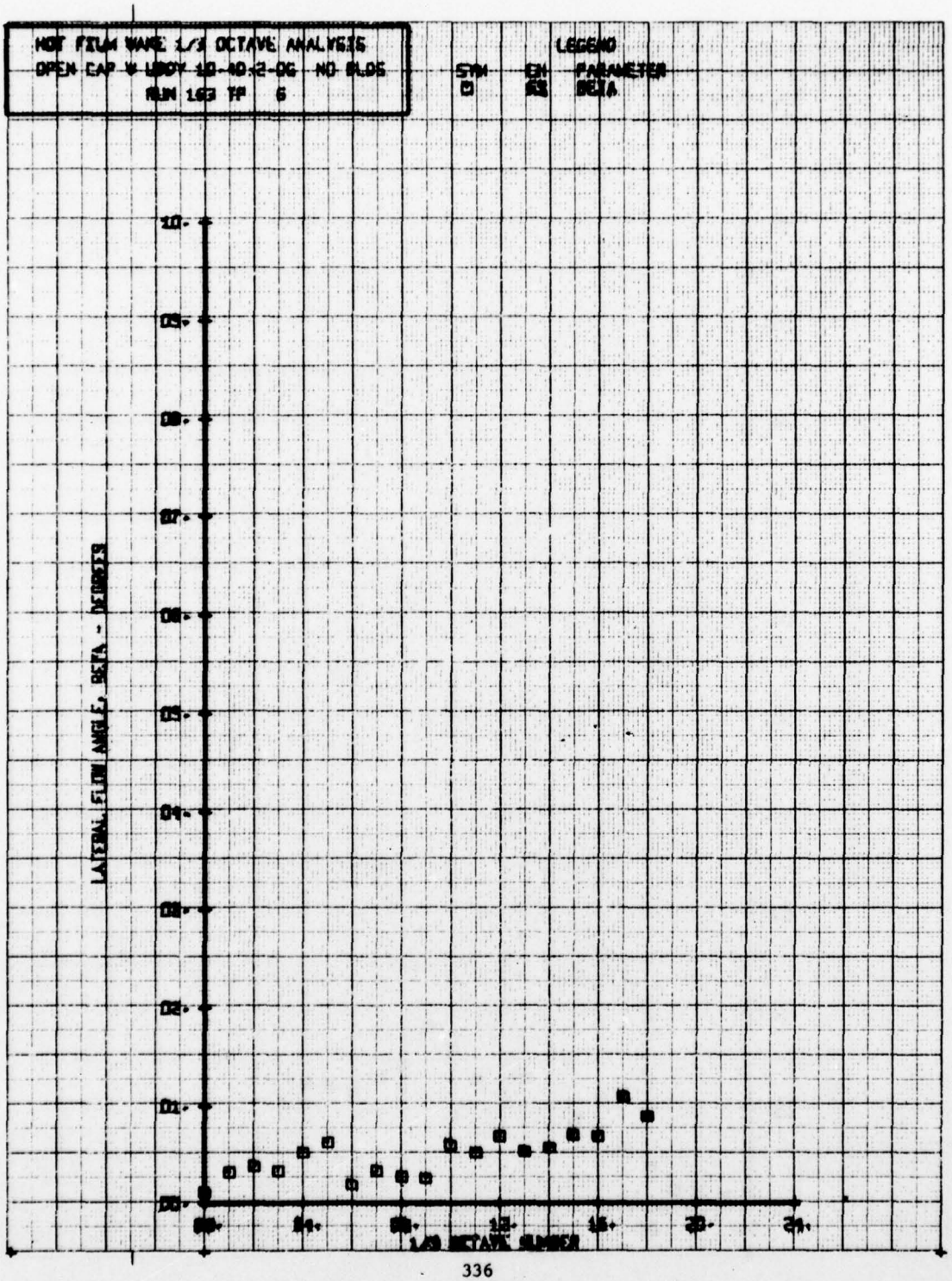

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP + GROV 10-40-2-SC NO BLDS
RUN 103 TP 5
LEGEND
SYM CH PARAMETER
B 86 ALPHA
10.
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VERTICAL FLOW ANGLE, ALPHA - DEGREES
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1/3 OCTAVE NUMBER

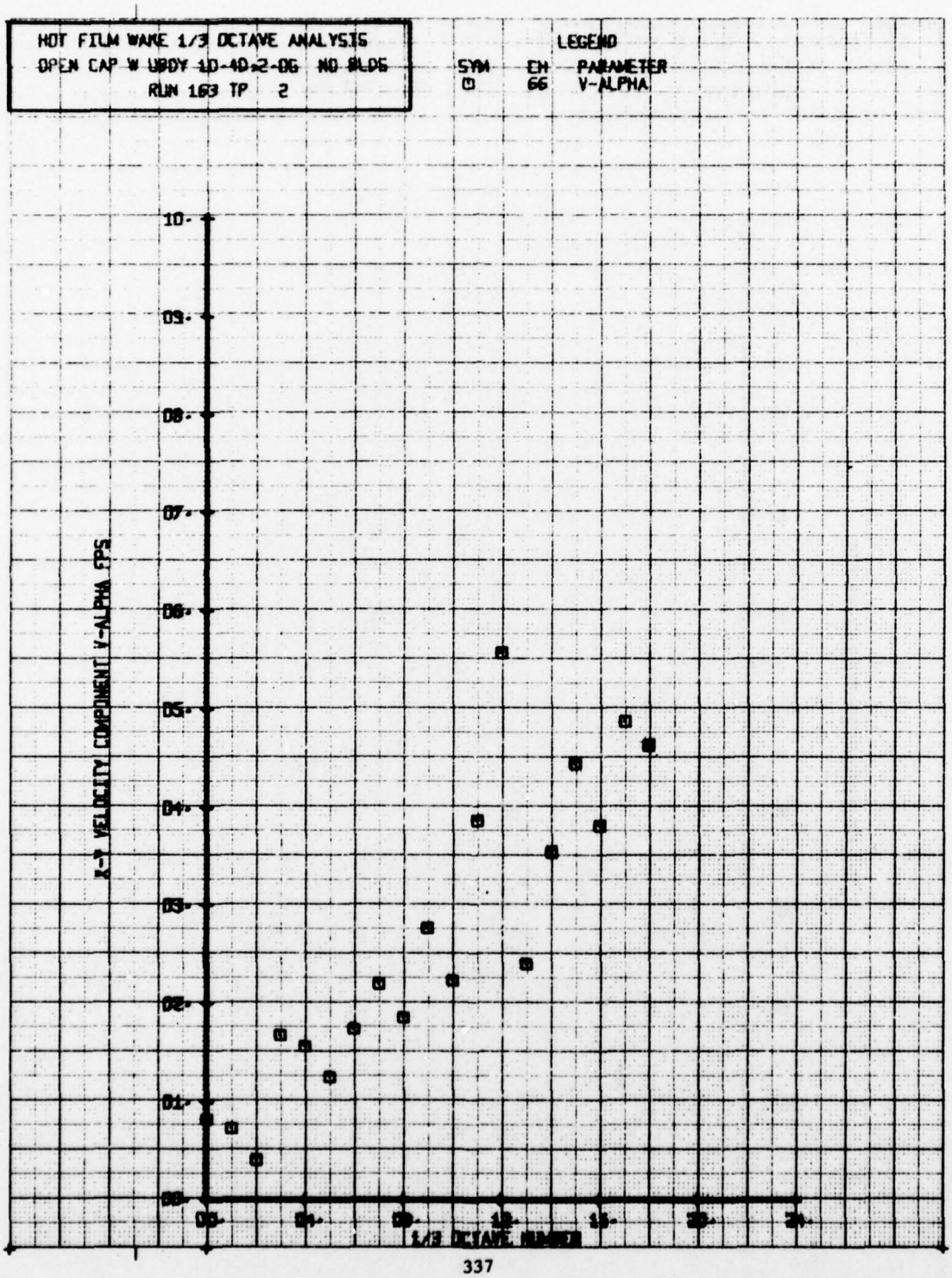

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W LOOV 10-40.2-DG NO BLDS
RUN 103 TP 2
LEGEND
SYM EN PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER
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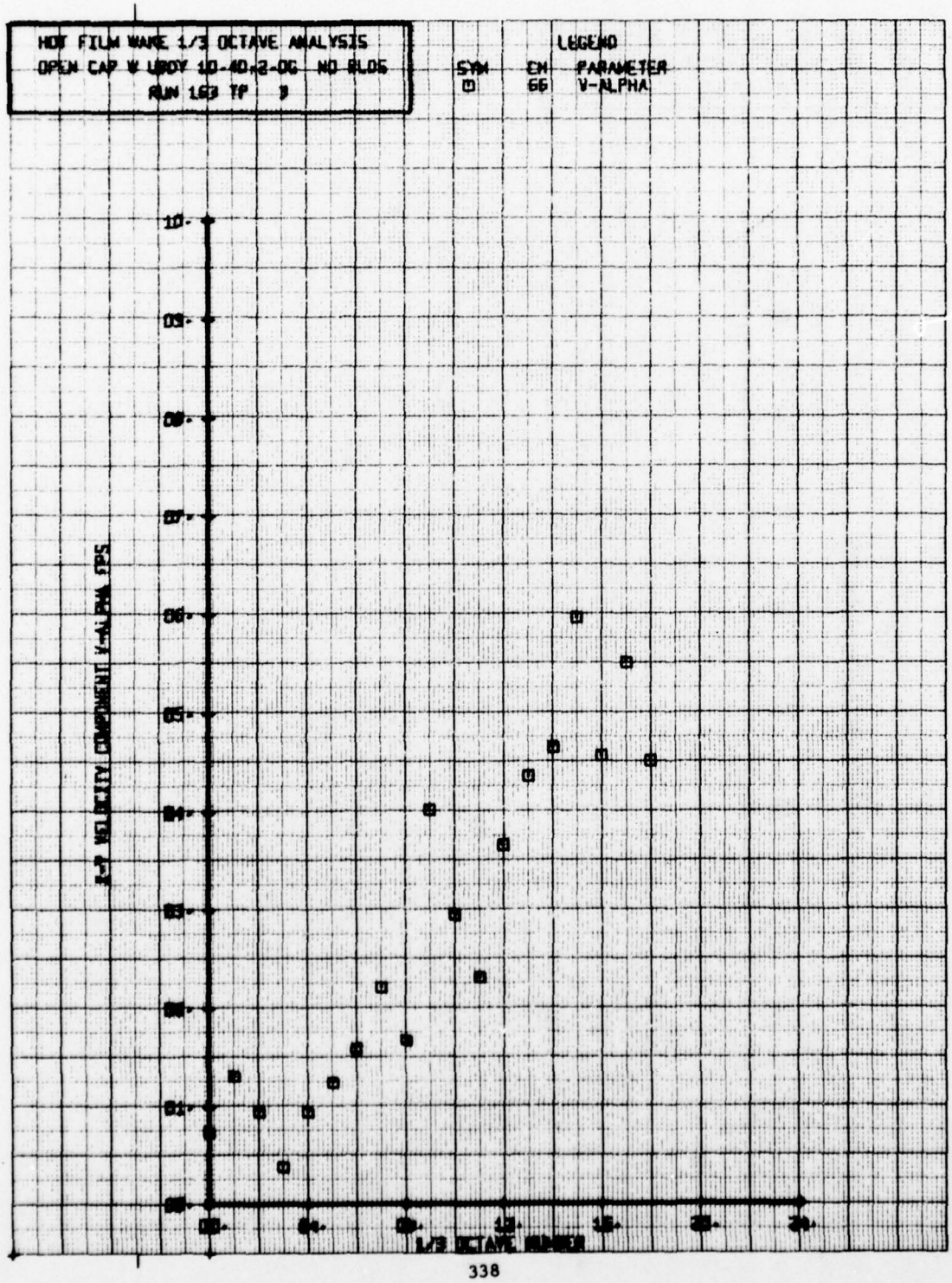

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W LBODY 10-40.2-DG NO GLDS
RUN 169 TP 3
LEGEND
SYM EM PARAMETER
65 BETA
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LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE BANDS

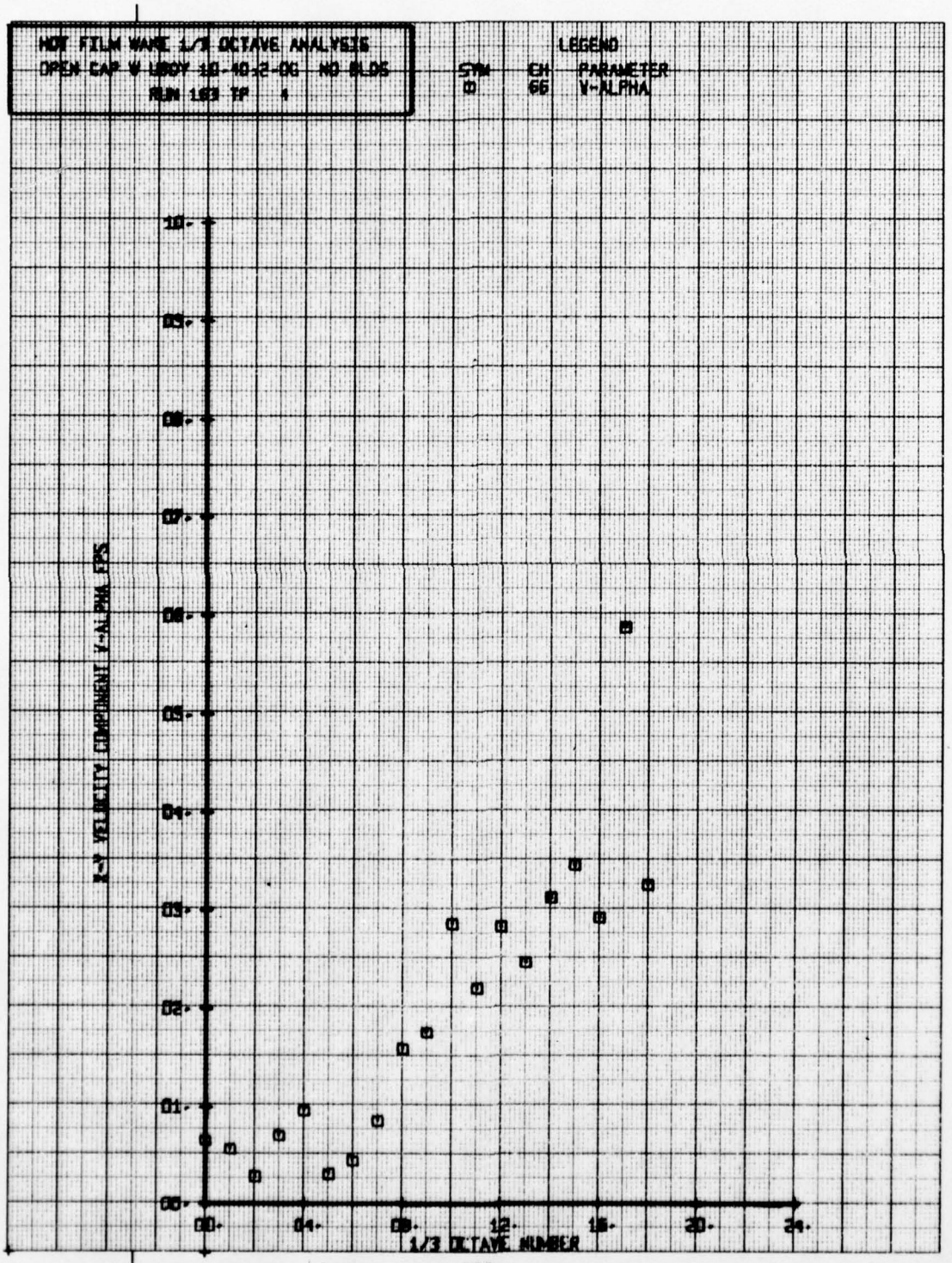

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W BODY 10-40-2-DG MD BLDS
RUN 163 TP 4
LEGEND
SYM CH PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
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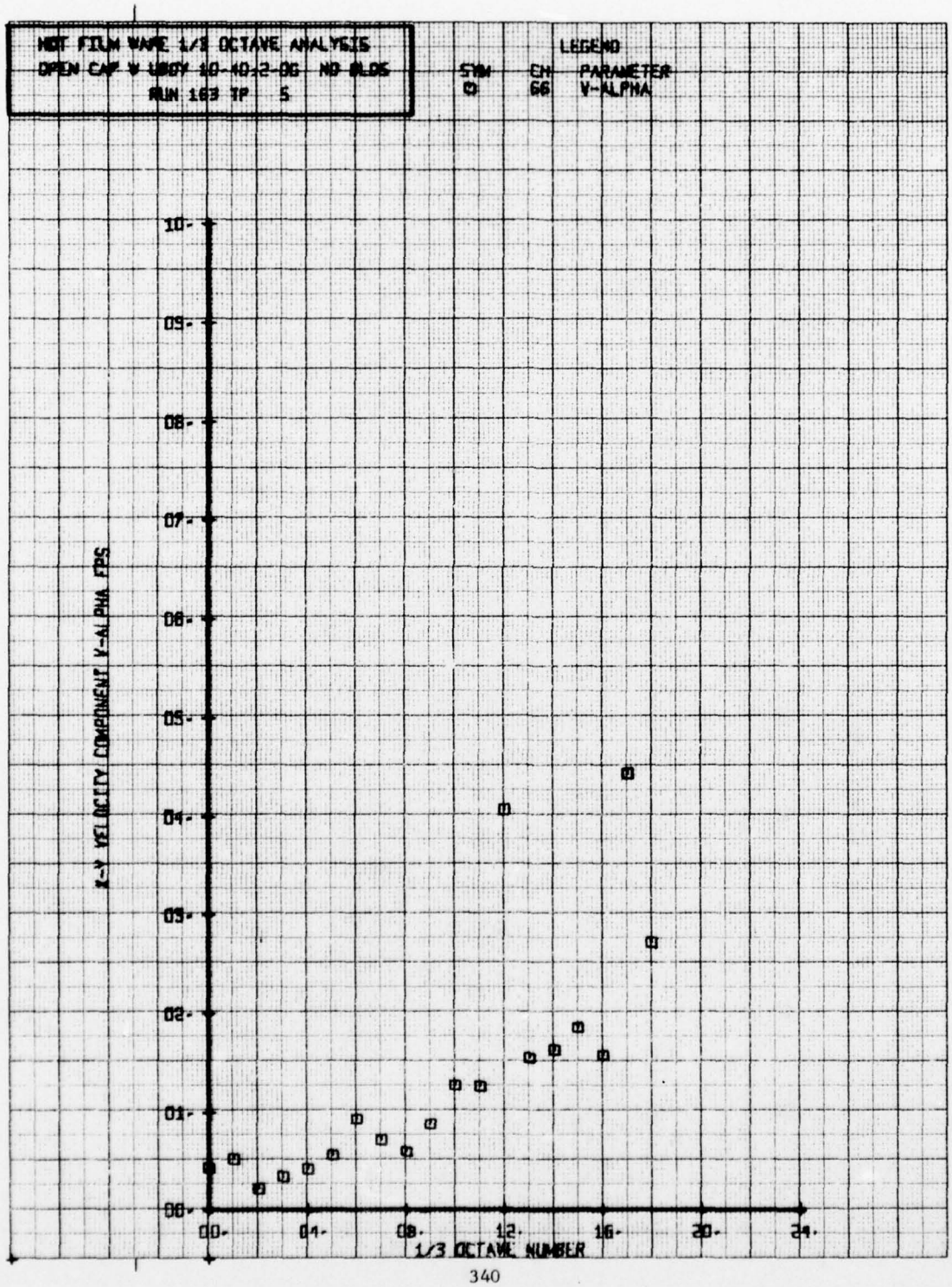

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 10-40-2-DG NO BLOS
RUN 163 TP 5
LEGEND
SYM CH PARAMETER
65 BETA
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LATERAL FLOW ANGLE, BETA - DEGREES
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20.
24.
1/3 OCTAVE NUMBER

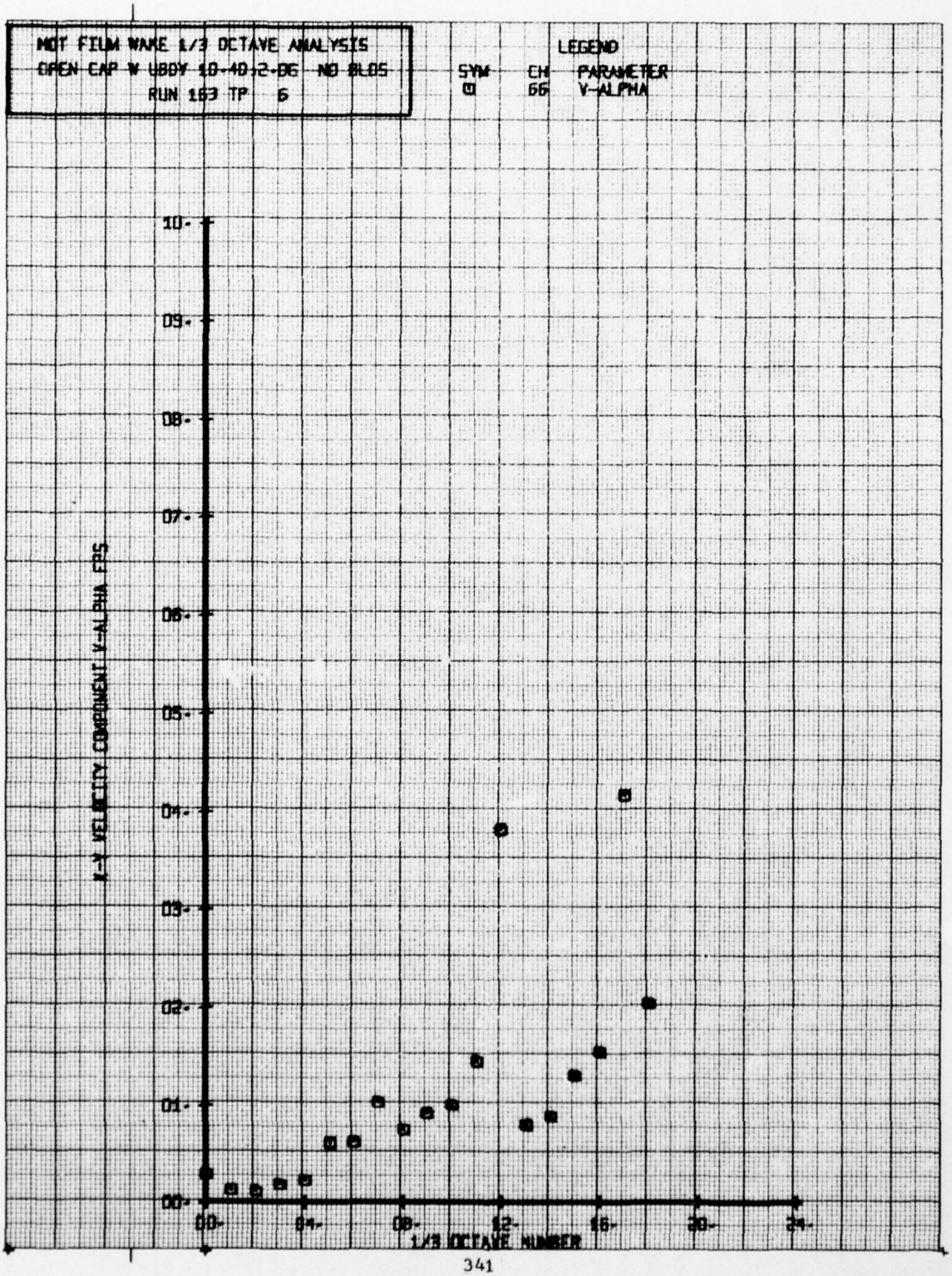

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W LBODY 10-40-2-DG NO BLDS
RUN 163 TP 6
LEGEND
SYM EN PARAMETER
D BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER

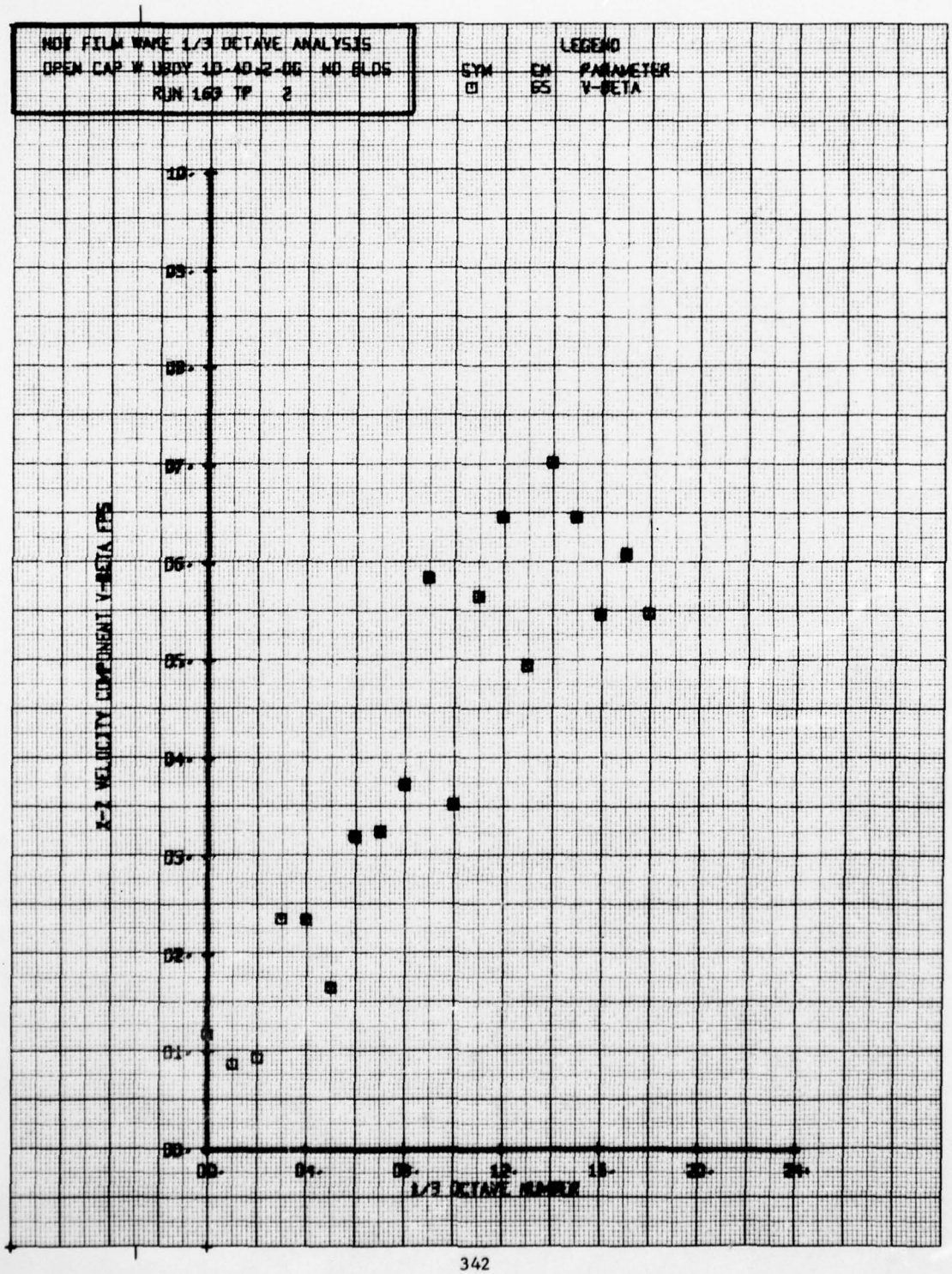

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBDY 10-40-2-06 NO BLDG
RUN 163 TP 2
LEGEND
SYM EM PARAMETER
66 V-ALPHA
10.
09.
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X-Y VELOCITY COMPONENT V-ALPHA FPS
1/3 OCTAVE NUMBER

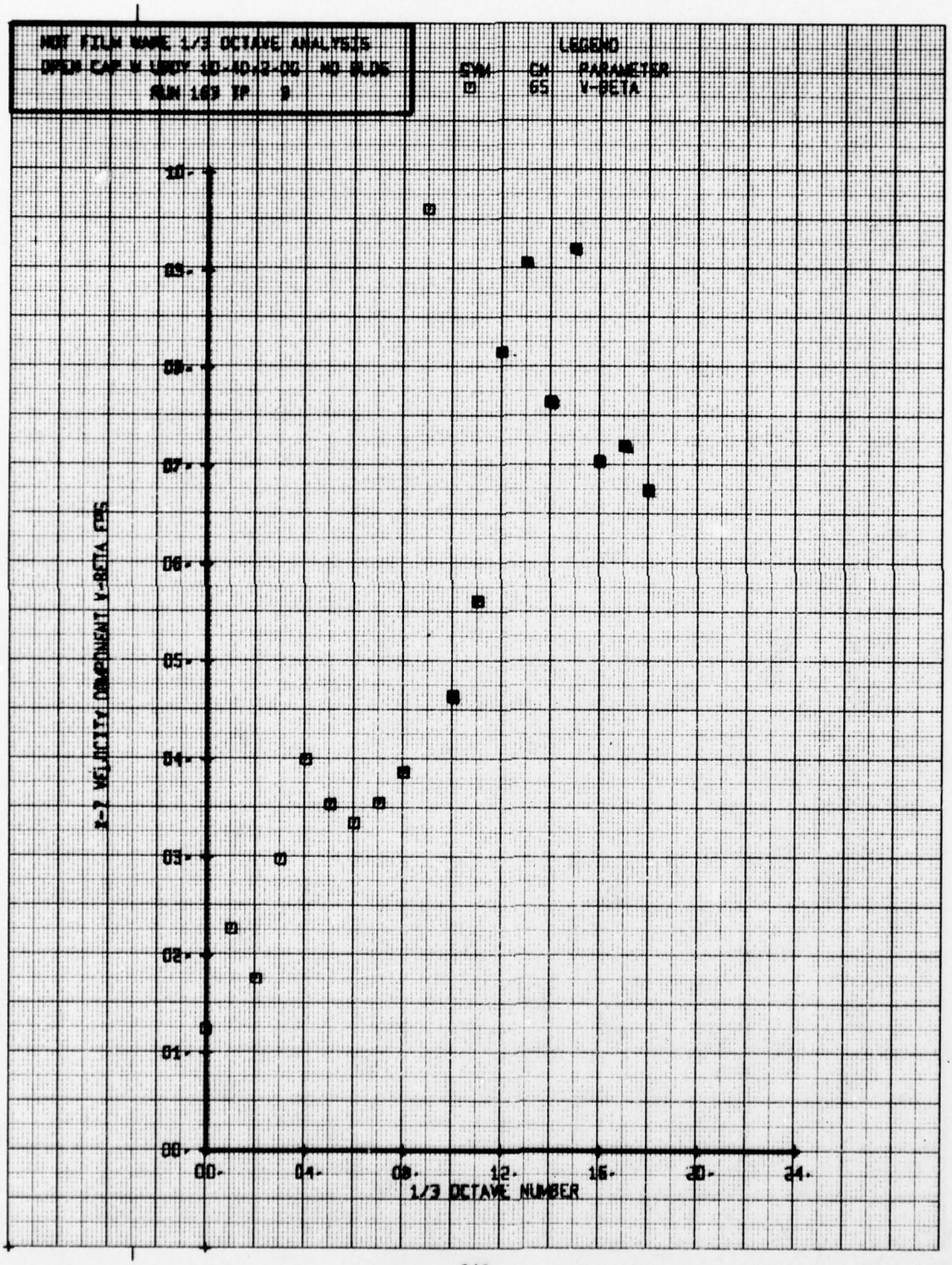

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 10-40-2-OG NO BLOS
RUN 163 TP 9
LEGEND
SYM CM PARAMETER
66 V-ALPHA
10.
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20.
1/3 OCTAVE BANDS

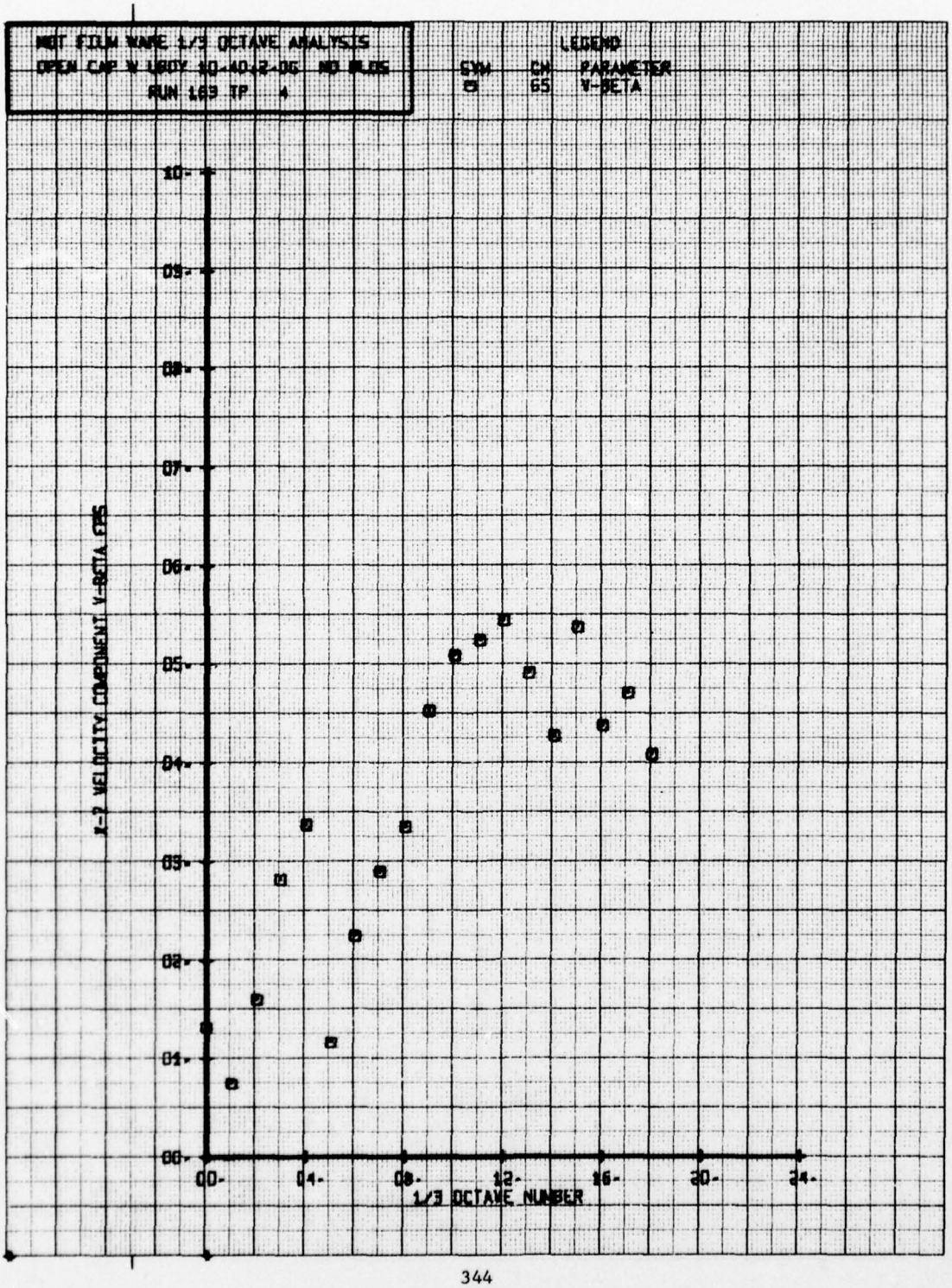

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W LBOY 10-10.2-DG NO BLDS
RUN 183 TP 4
LEGEND
SYM CH PARAMETER
0 66 V-ALPHA
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R-V VELOCITY COMPONENT V-ALPHA FPS
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16.
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24.
1/3 OCTAVE NUMBER

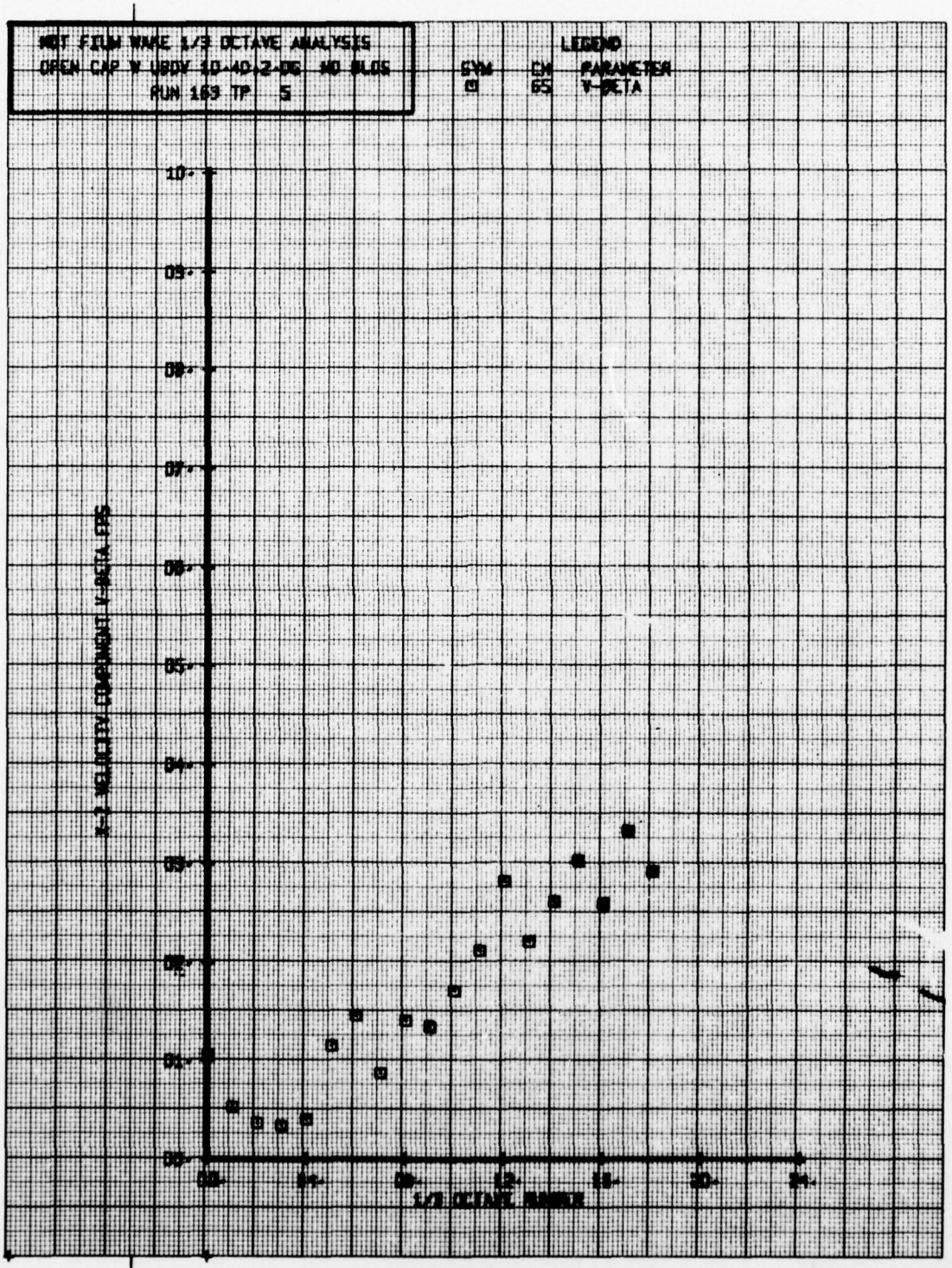

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP V UBOY 10-10-2-DG NO BLDS
RUN 163 TP 5
LEGEND
SYM CH PARAMETER
0 66 V-ALPHA
10-
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X-Y VELOCITY COMPONENT V-ALPHA FPS
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16-
20-
24-
1/3 OCTAVE NUMBER

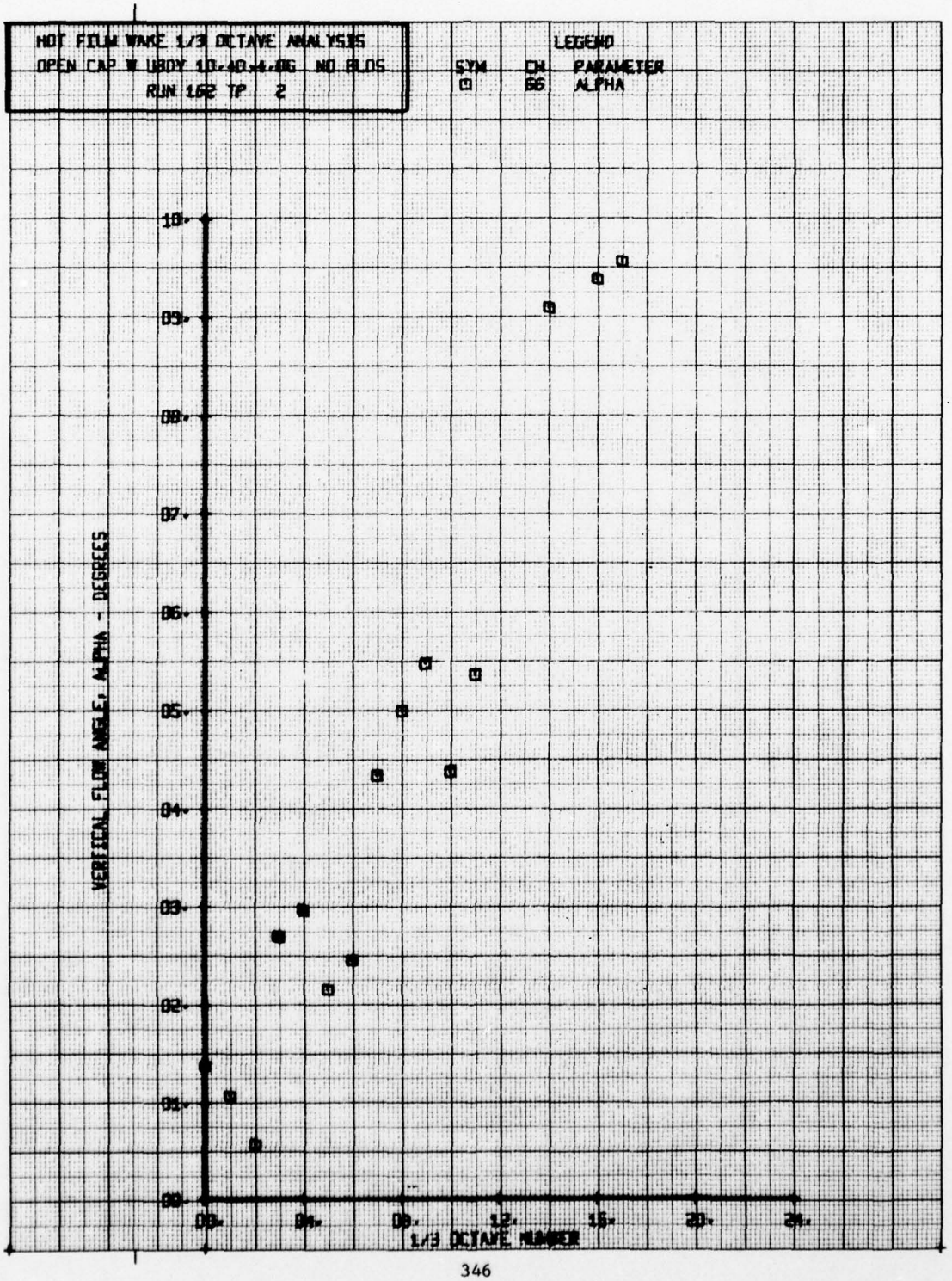

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBDY 10-40.2-DG NO BLOS
RUN 163 TP 6
LEGEND
SYM CH PARAMETER
66 V-ALPHA
10.
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N-V VELOCITY COMPONENT V-ALPHA FPS
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20.
24.
1/3 OCTAVE NUMBER

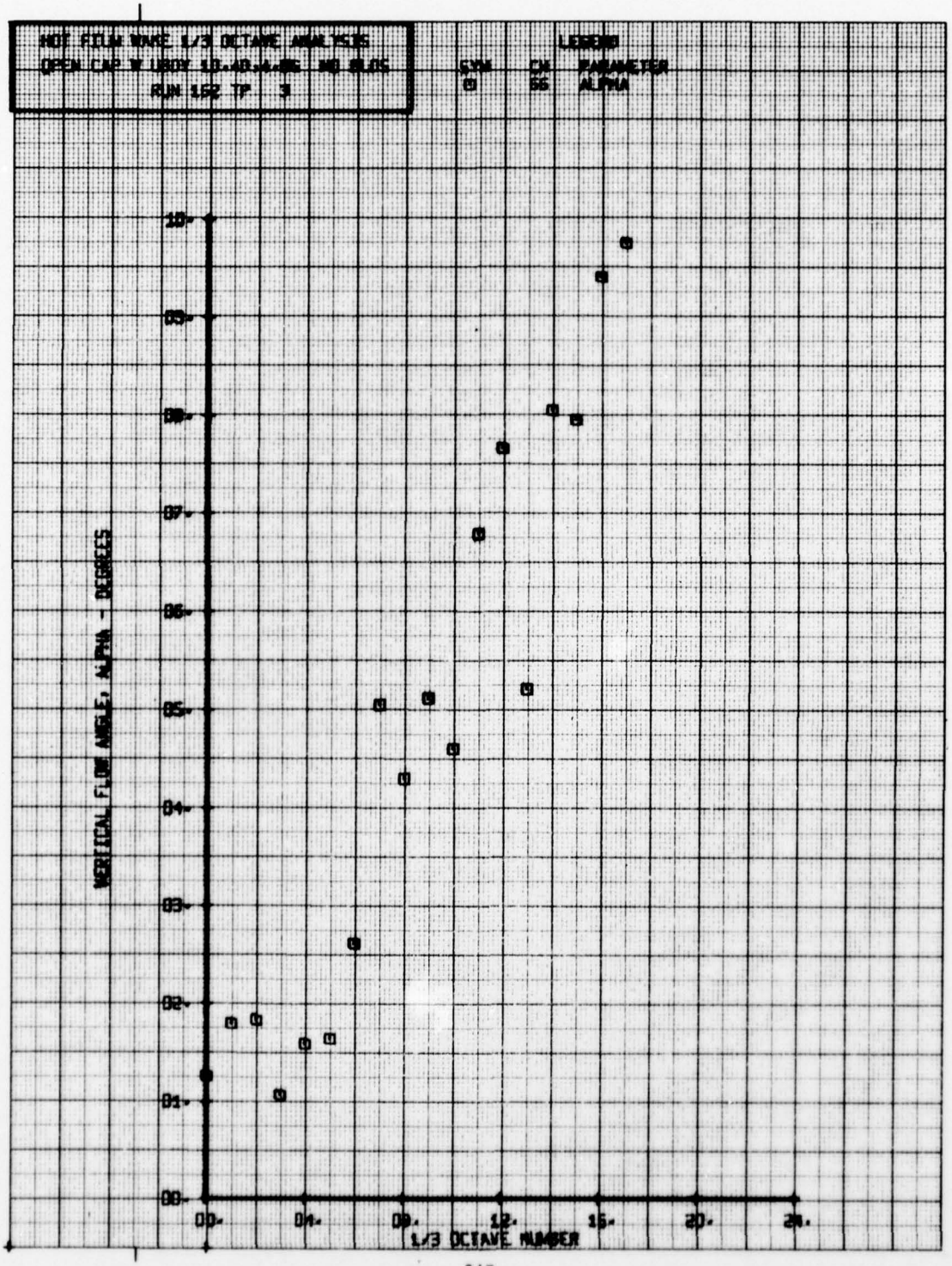

HDF FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP # UBDY 10-A0.2-0G NO BLOS
RUN 169 TP 2
LEGEND
SYM CM PARAMETER
65 V-BETA
X-Z VELOCITY COMPONENT V-BETA FPS
1/3 OCTAVE NUMBER

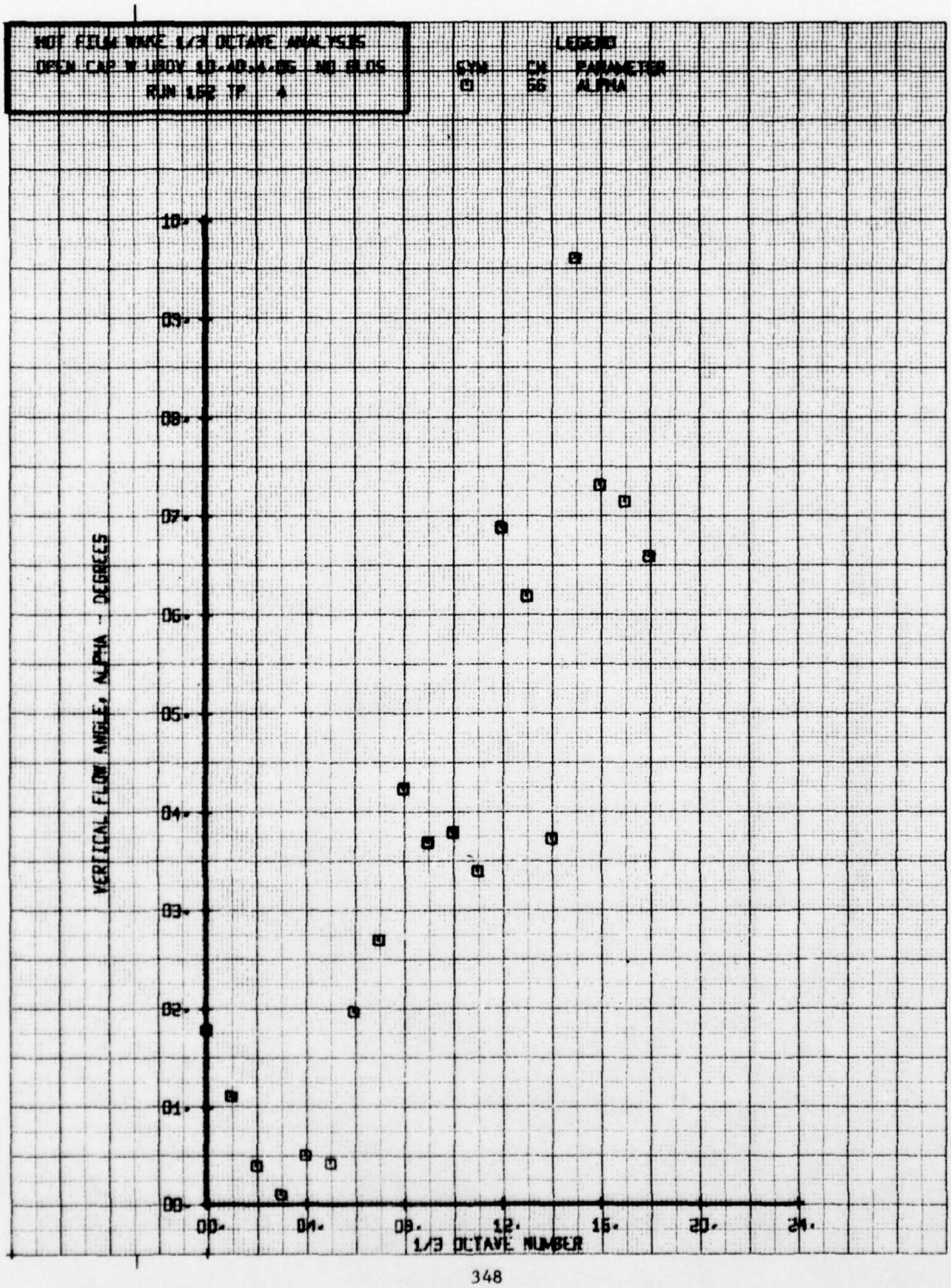

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UNDY 10-40-2-00 NO BLDG
RUN 163 TP 3
LEGEND
SYM CH PARAMETER
65 V-BETA
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09
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X-2 VELOCITY COMPONENT V-BETA FPS
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24
1/3 OCTAVE NUMBER

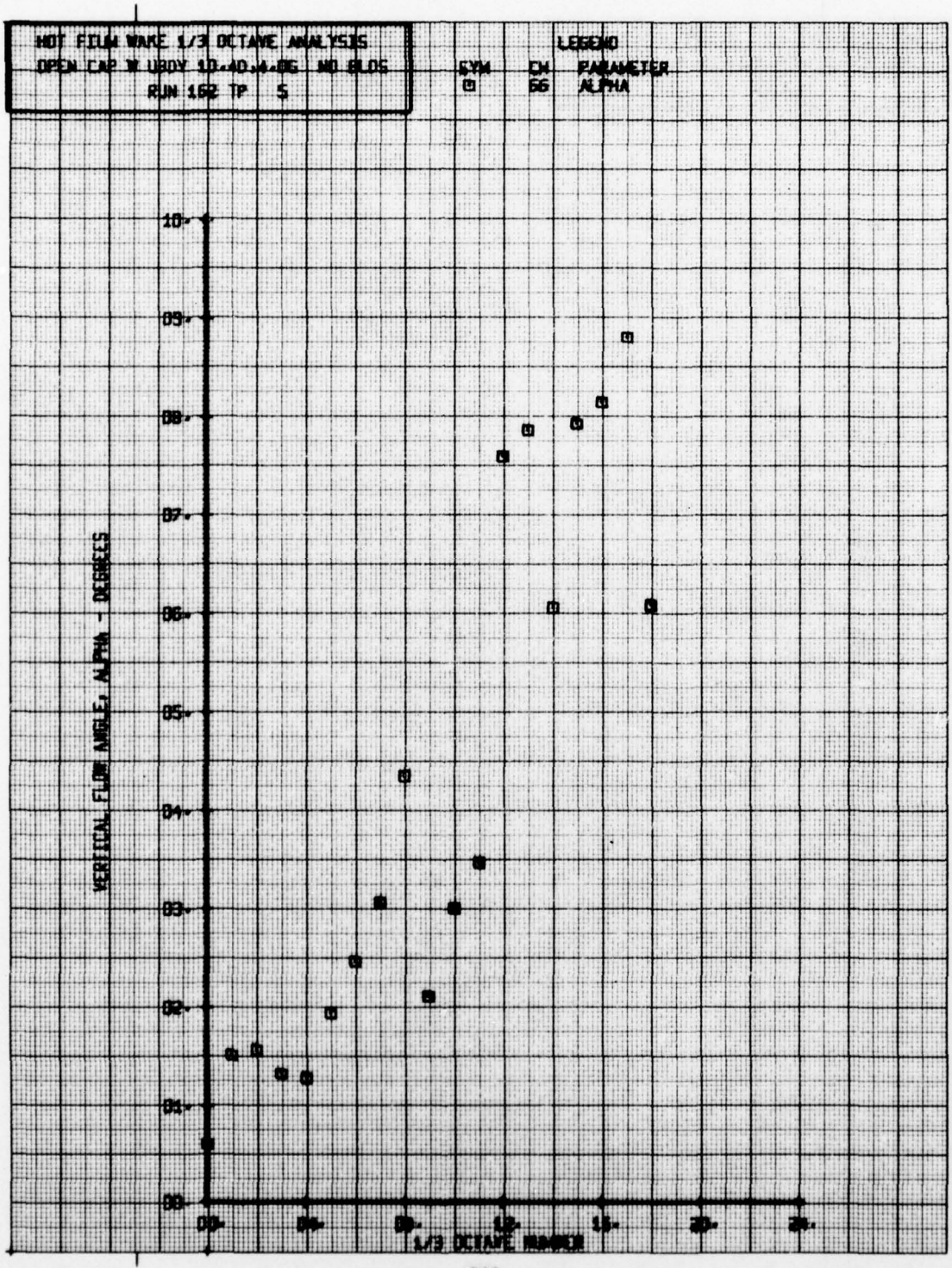

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W LBOY 10-40-2-DG NO BLDS
RUN 169 TP 4
LEGEND
SYM CH PARAMETER
65 V-BETA
10-
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16-
20-
24-
1/3 OCTAVE NUMBER
U-2 VELOCITY COMPONENT V-BETA-FPS

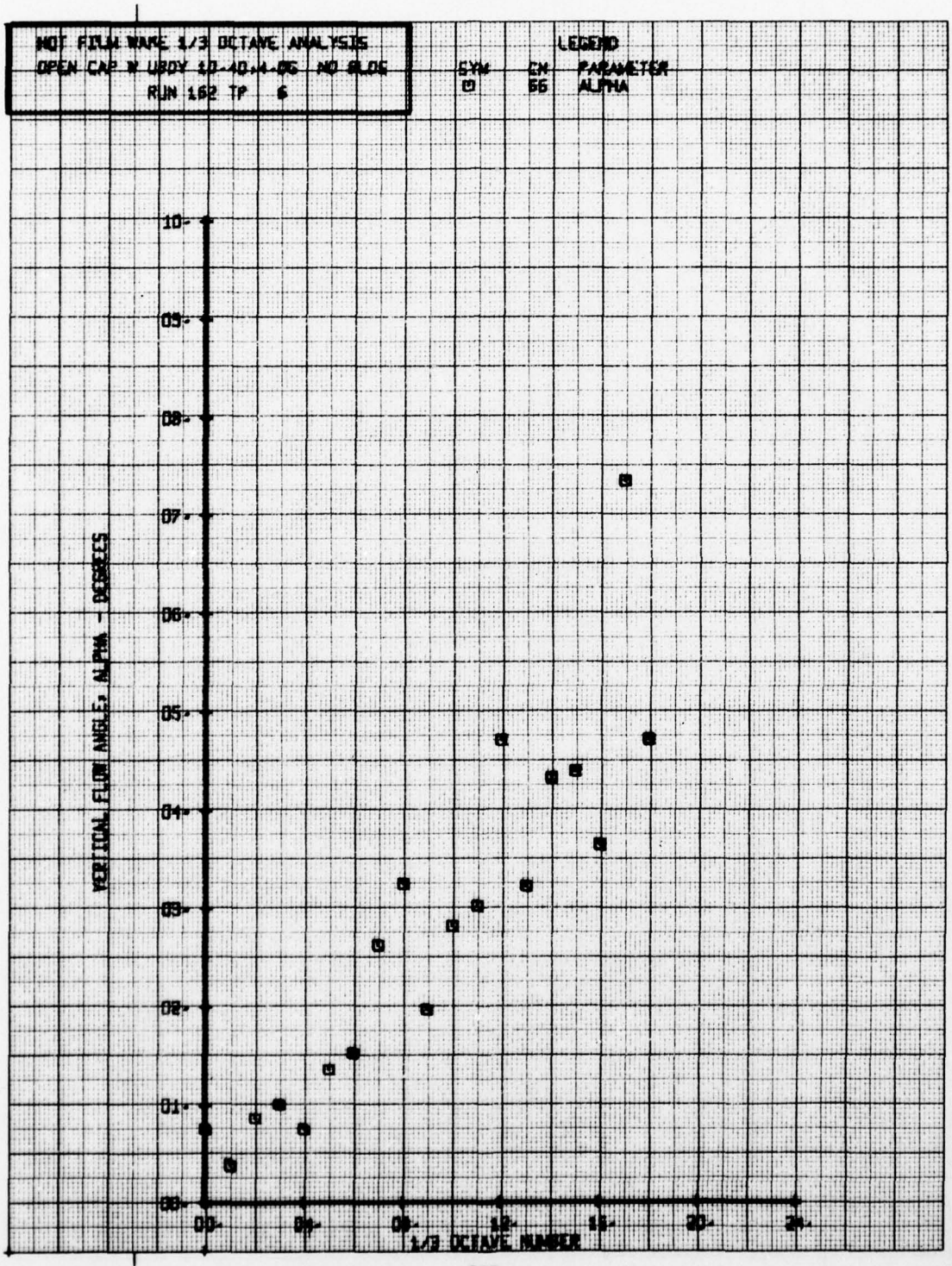

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBDV 10-40-2-DG NO BLOS
RUN 169 TP 5
LEGEND
SYM CM PARAMETER
65 V-BETA
10.
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X-2 VELOCITY COMPONENT V-BETA FPS
1/3 OCTAVE NUMBER

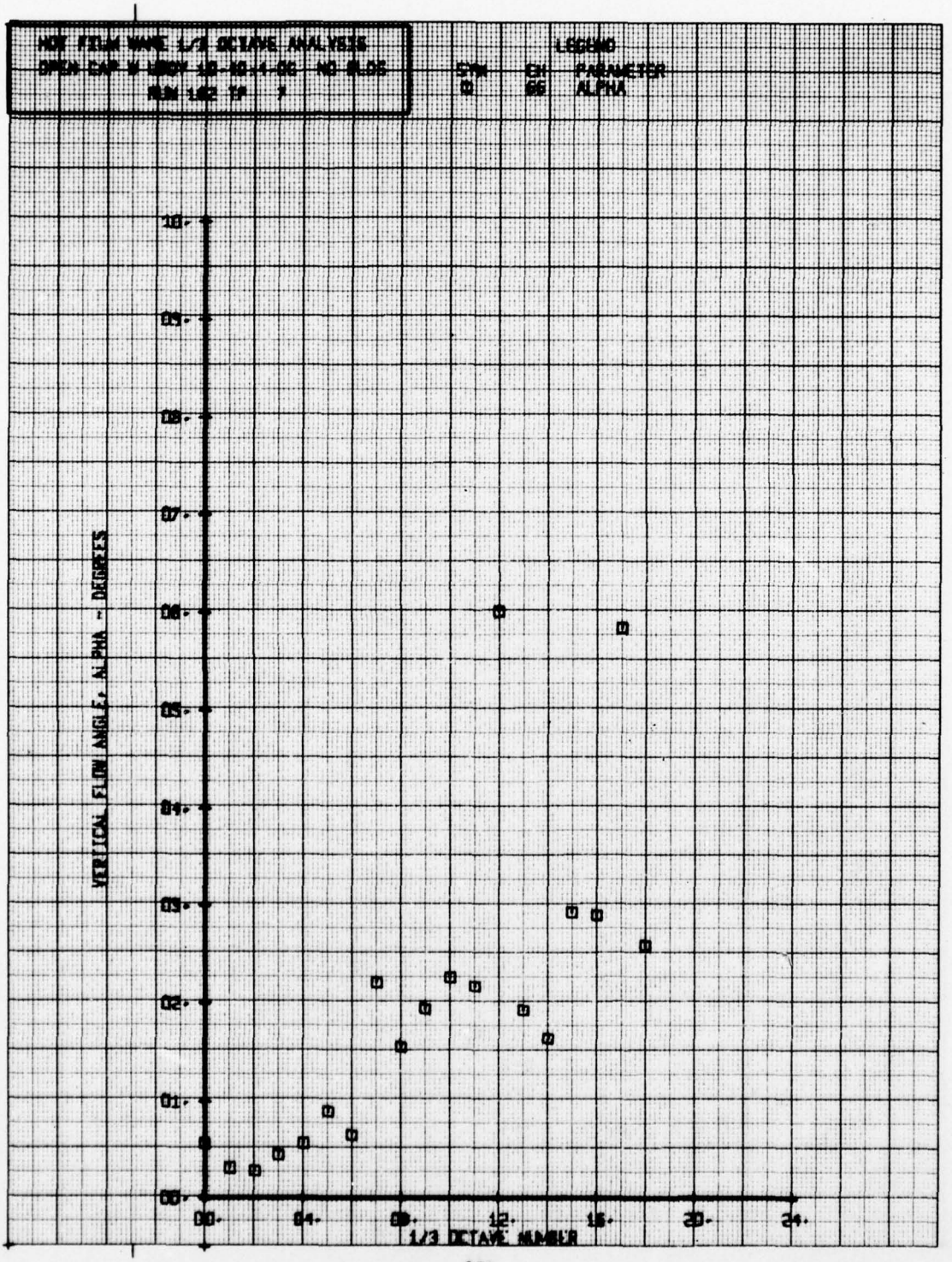

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBDY 10.40.4.0G NO BLDS
RUN 162 TP 2
LEGEND
SYM CH PARAMETER
96 ALPHA
10.
09.
08.
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VERTICAL FLOW ANGLE, ALPHA - DEGREES
08.
09.
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16.
20.
24.
1/3 OCTAVE NUMBER

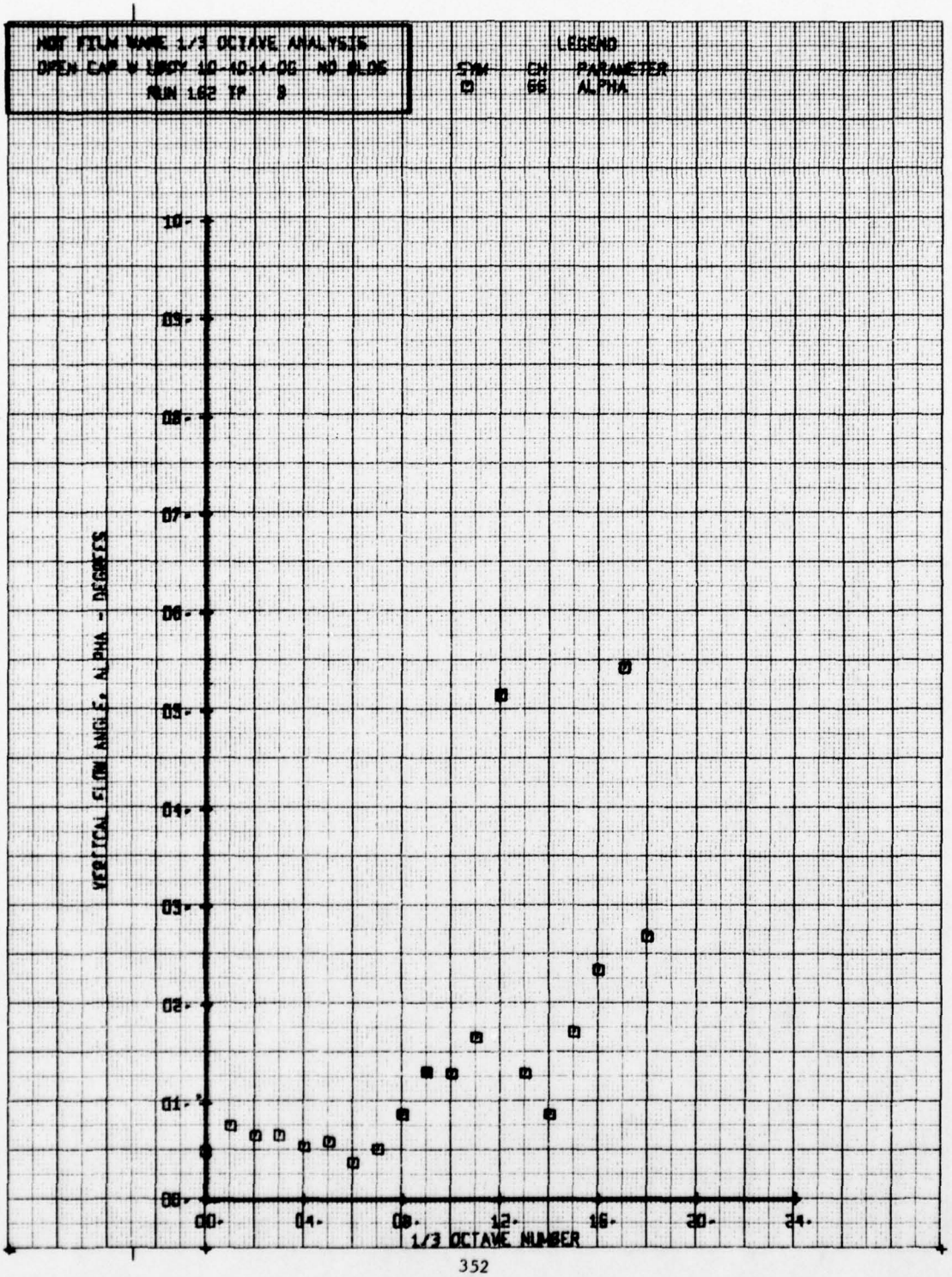

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W LBOY 10.40.4.0E NO SLOS
RUN 152 TP 3
LEGEND
SYM PARAMETER
ALPHA
10.
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VERTICAL FLOW ANGLE, ALPHA - DEGREES
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04.
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12.
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24.
1/3 OCTAVE NUMBER

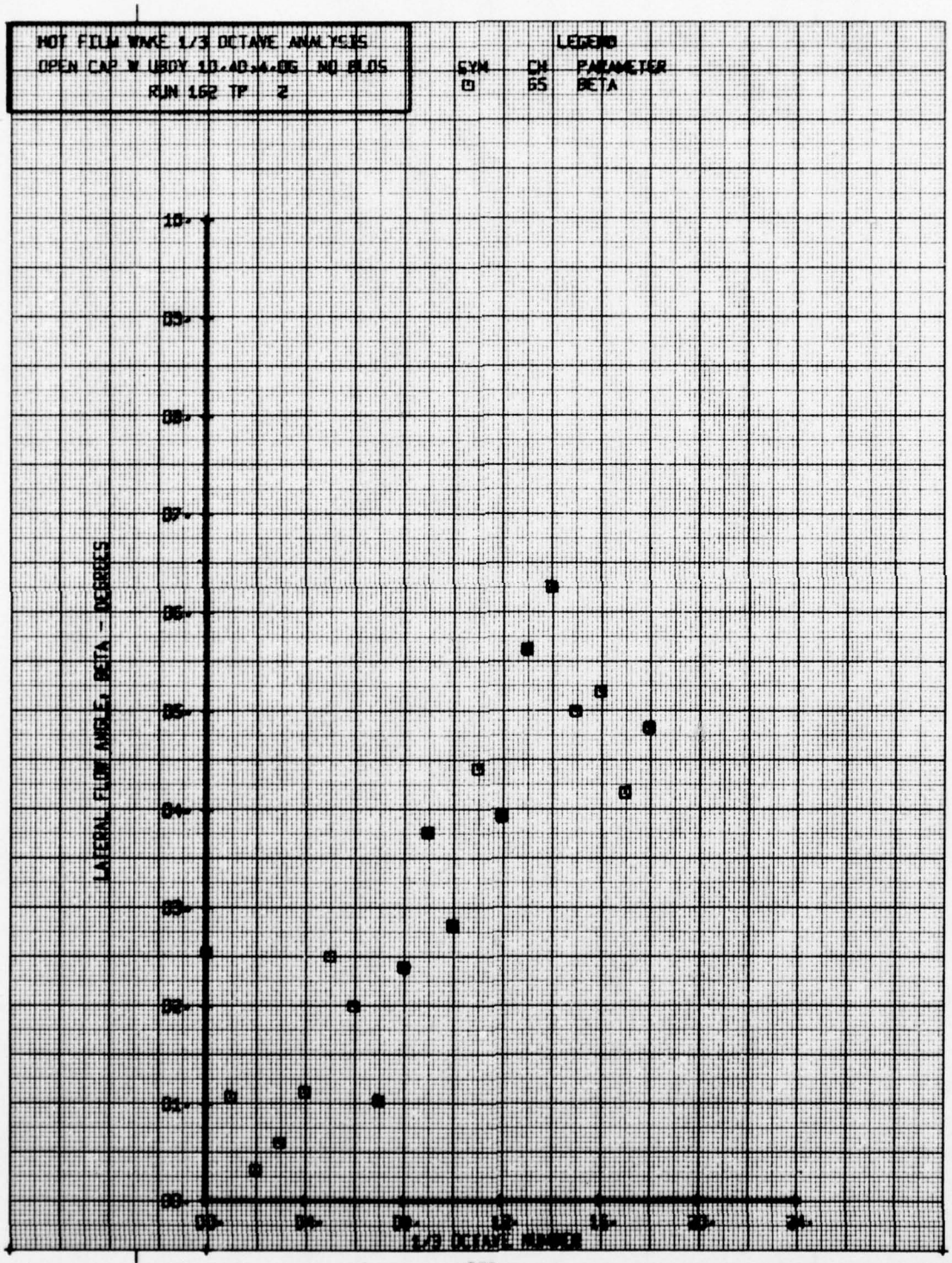

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
DESN CAP W UBDY AD-AD.A-05 NO SLOS
RUN 152 TP 4
LEGEND
SYM CH PARAMETER
56 ALPHA
10.
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VERTICAL FLOW ANGLE, ALPHA - DEGREES
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04.
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1/3 OCTAVE NUMBER

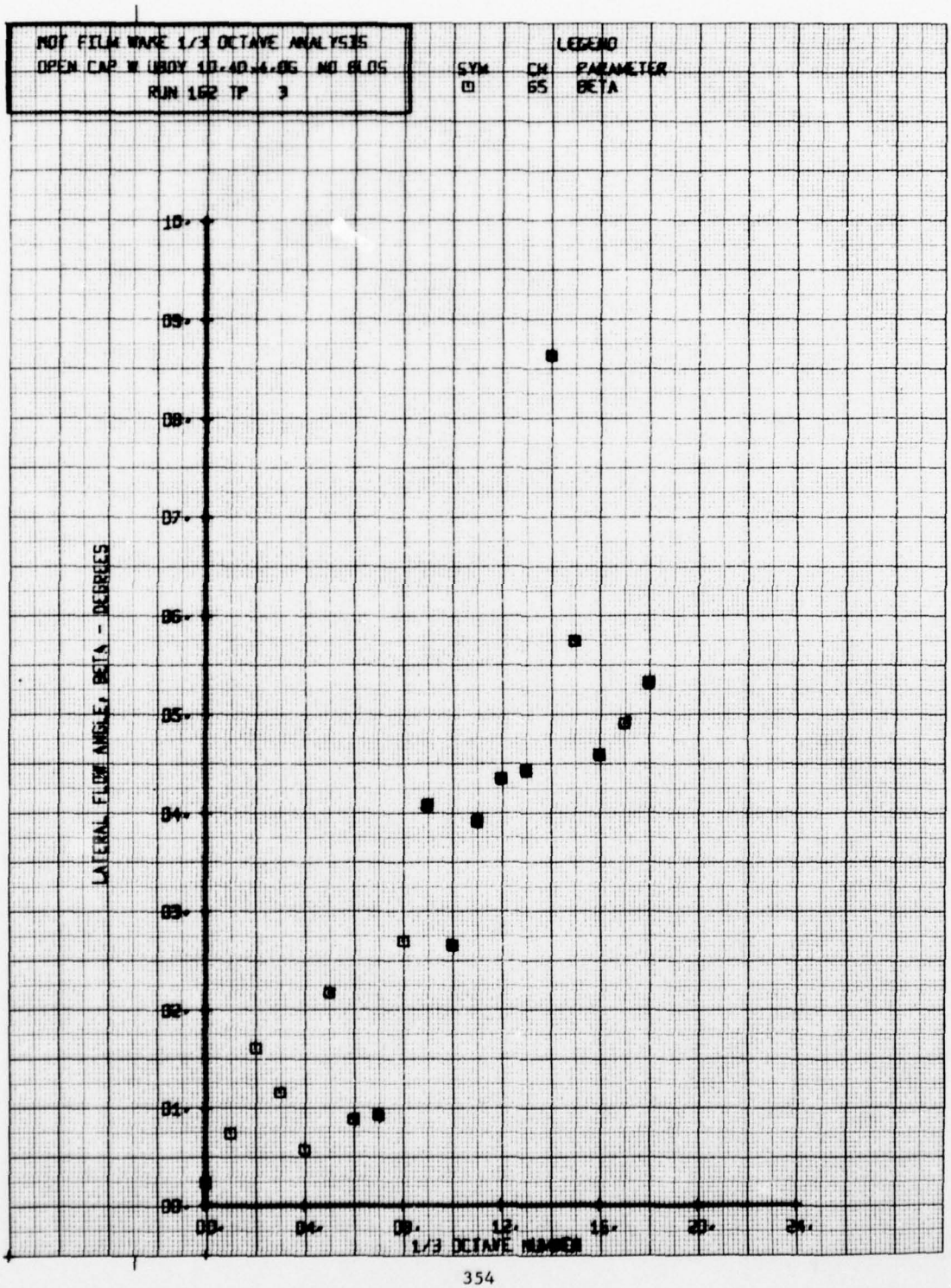

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBDY 10.40.4.06 NO BLOS
RUN 162 TP 5
LEGEND
SYM CH PARAMETER
66 ALPHA
10.
09.
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VERTICAL FLOW ANGLE, ALPHA - DEGREES
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25.
1/3 OCTAVE NUMBER

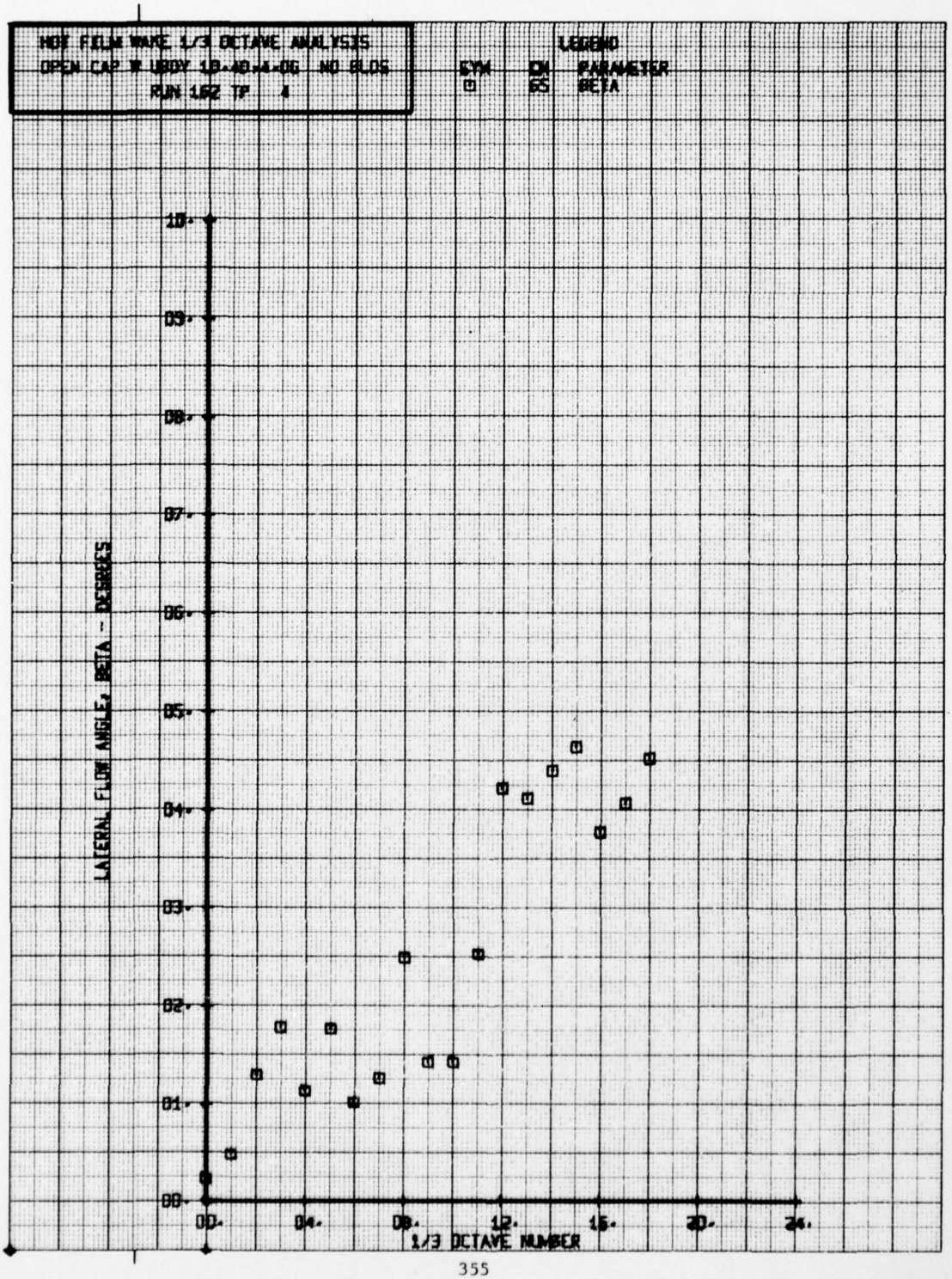

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBDY 10-40.4-06 NO BLOS
RUN 162 TP 6
LEGEND
SYM CN PARAMETER
66 ALPHA
10.
09.
08.
07.
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00. 06. 08. 12. 18. 20. 24.
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

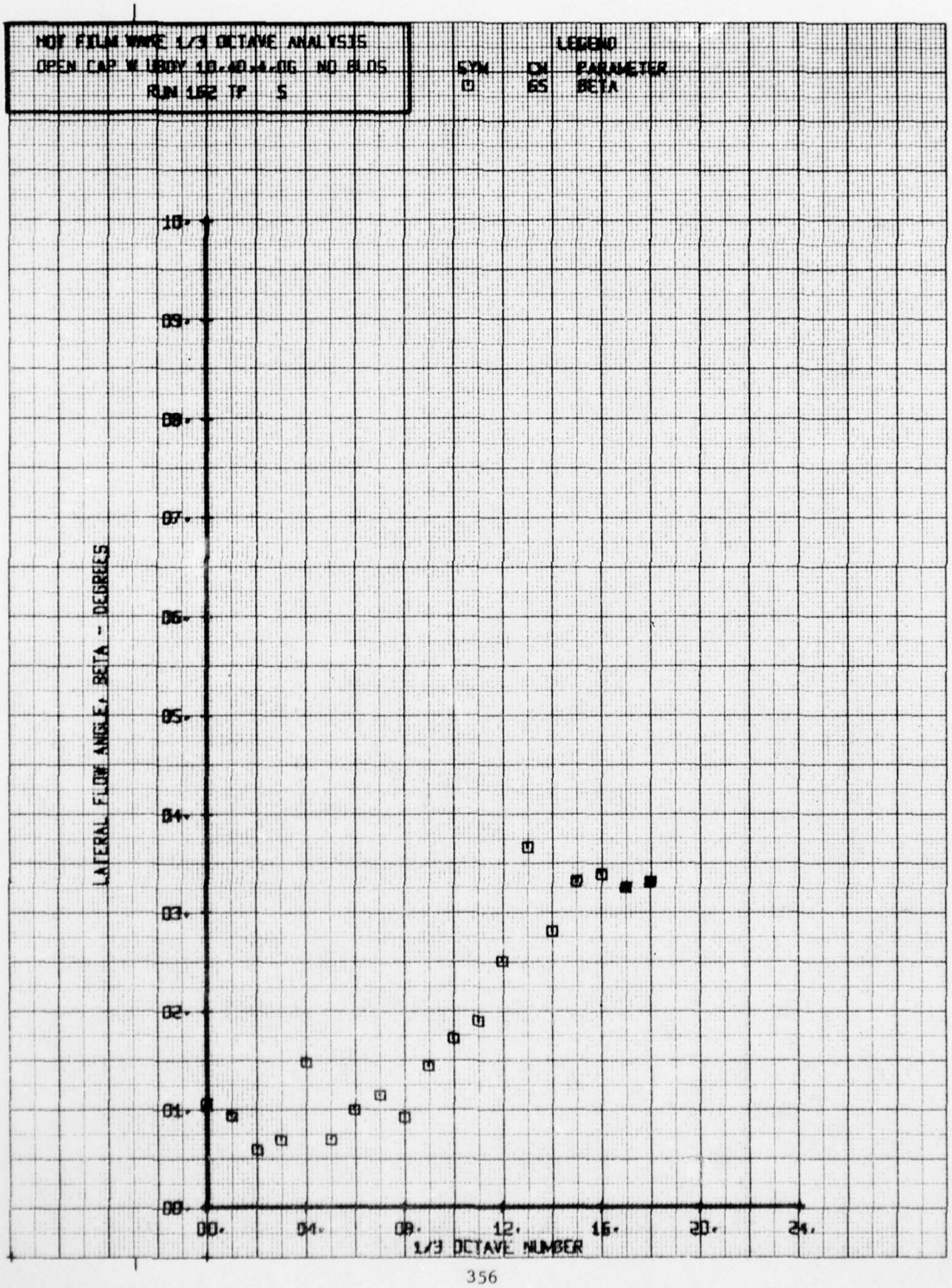

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W LEDGE 10-40-1-DG NO SLOT
RUN 162 TP 7
LEGEND
SYM CH PARAMETER
0 66 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

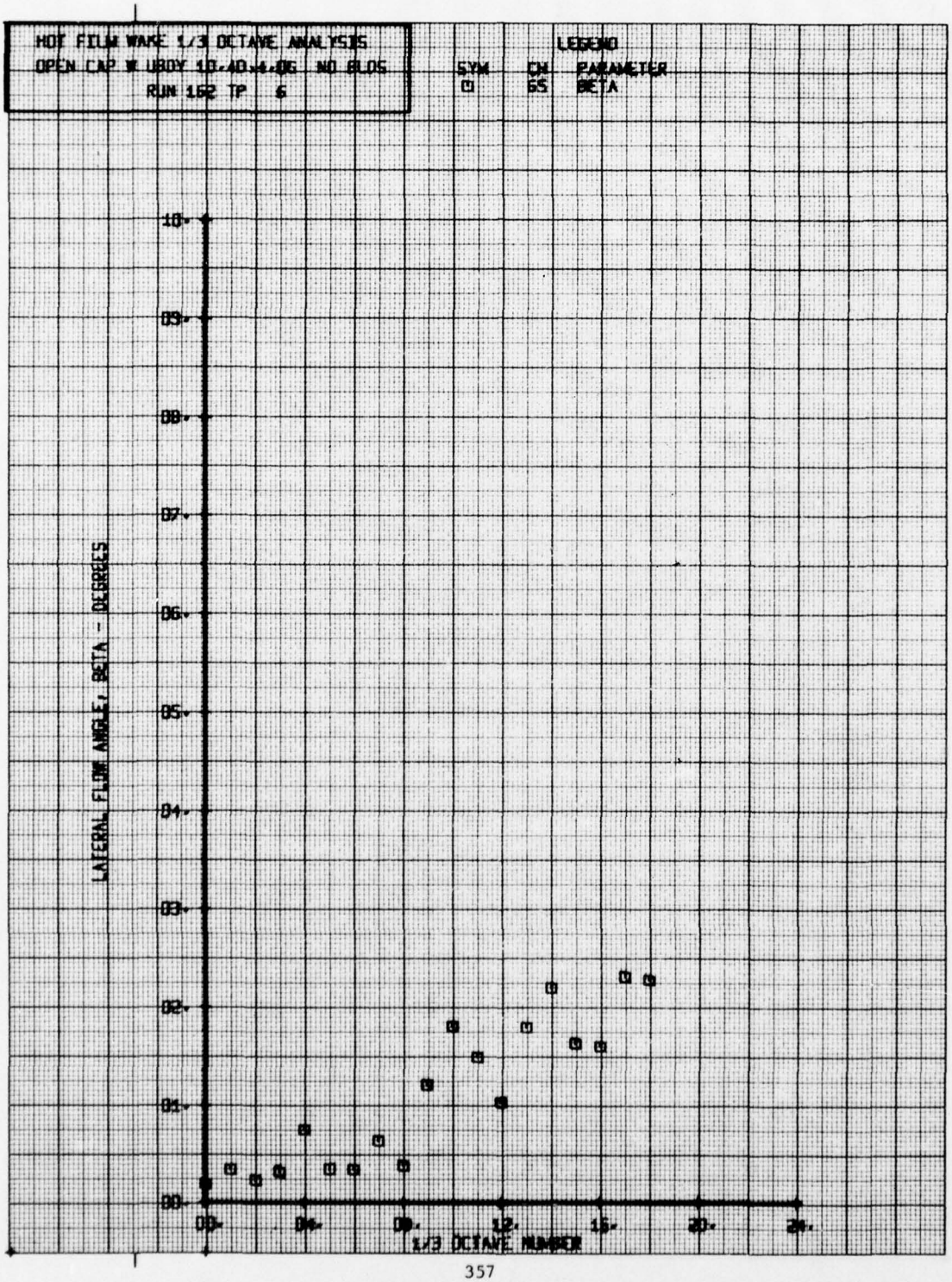

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W LROY 10-40.4-OG NO BLOS
RUN 162 YP 8
LEGEND
SYM CH PARAMETER
66 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
10.
09.
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00. 04. 08. 12. 16. 20. 24.
1/3 OCTAVE NUMBER

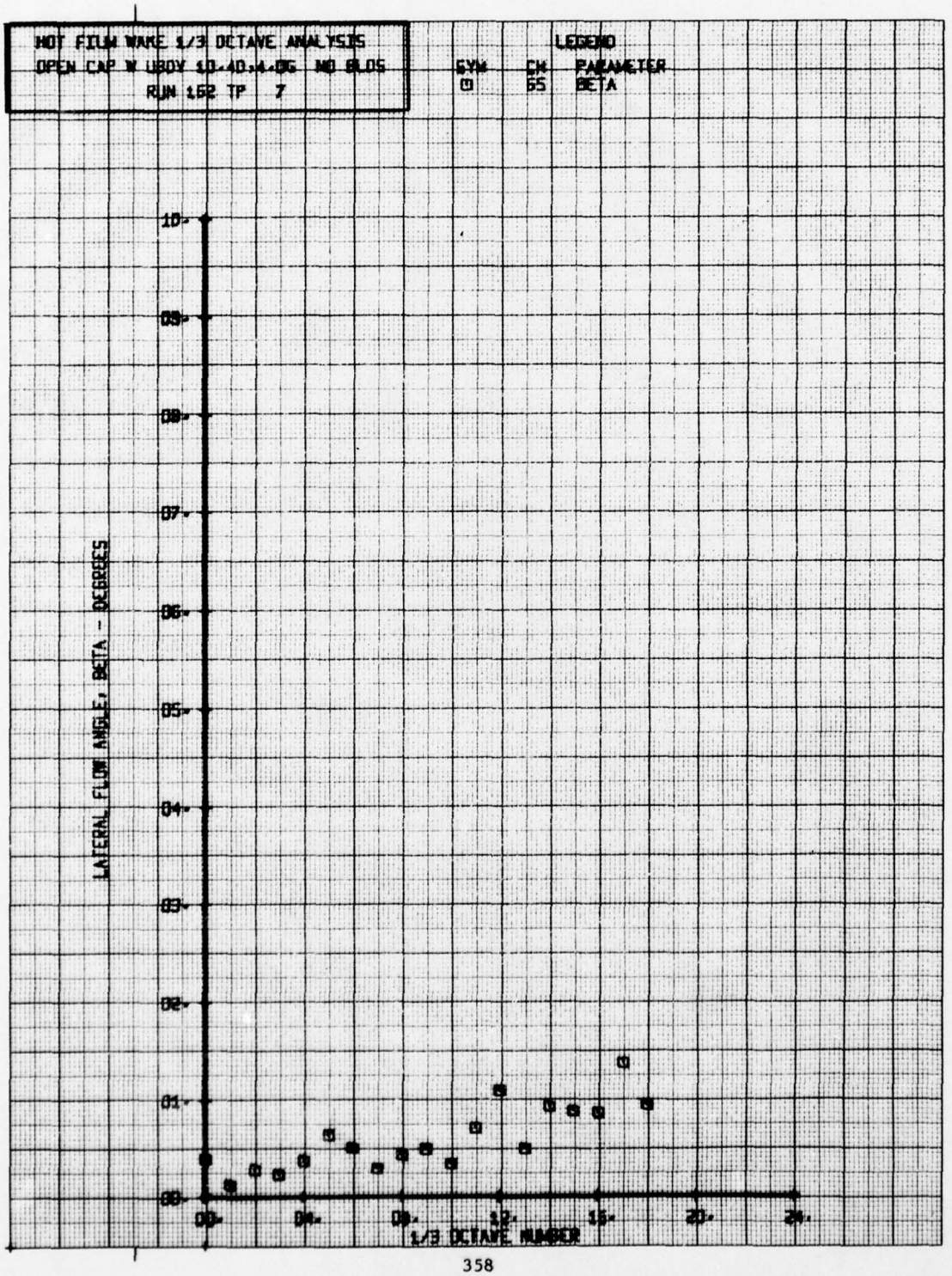

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 10.4D.4.0G NO BLOS
RUN 162 TP 2
LEGEND
SYM CH PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER

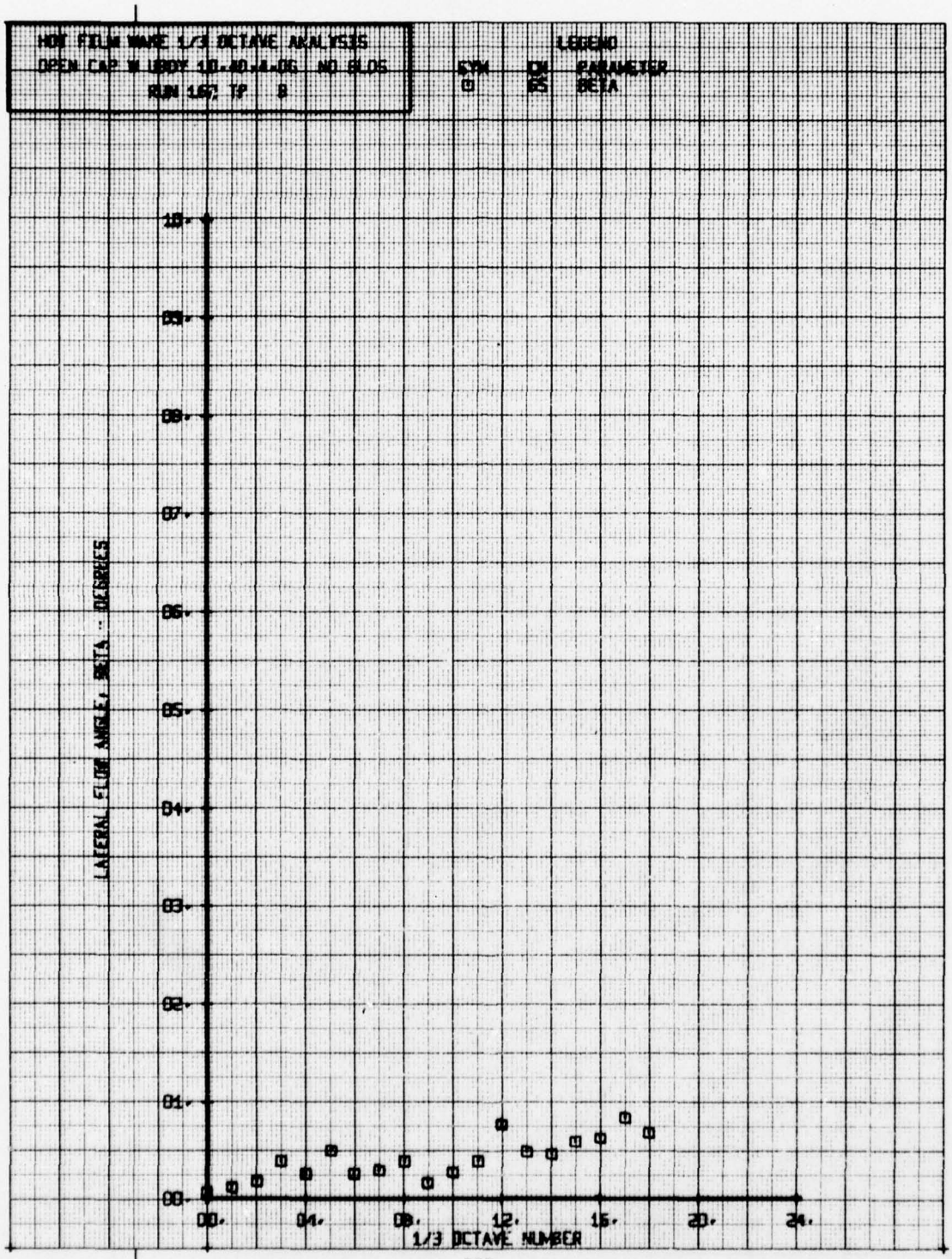

MDT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 10.40.4.0G NO BLOS
RUN 162 TP 3
LEGEND
SYM CH PARAMETER
65 BETA
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LATERAL FLOW ANGLE, BETA - DEGREES
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24.
1/3 OCTAVE NUMBER

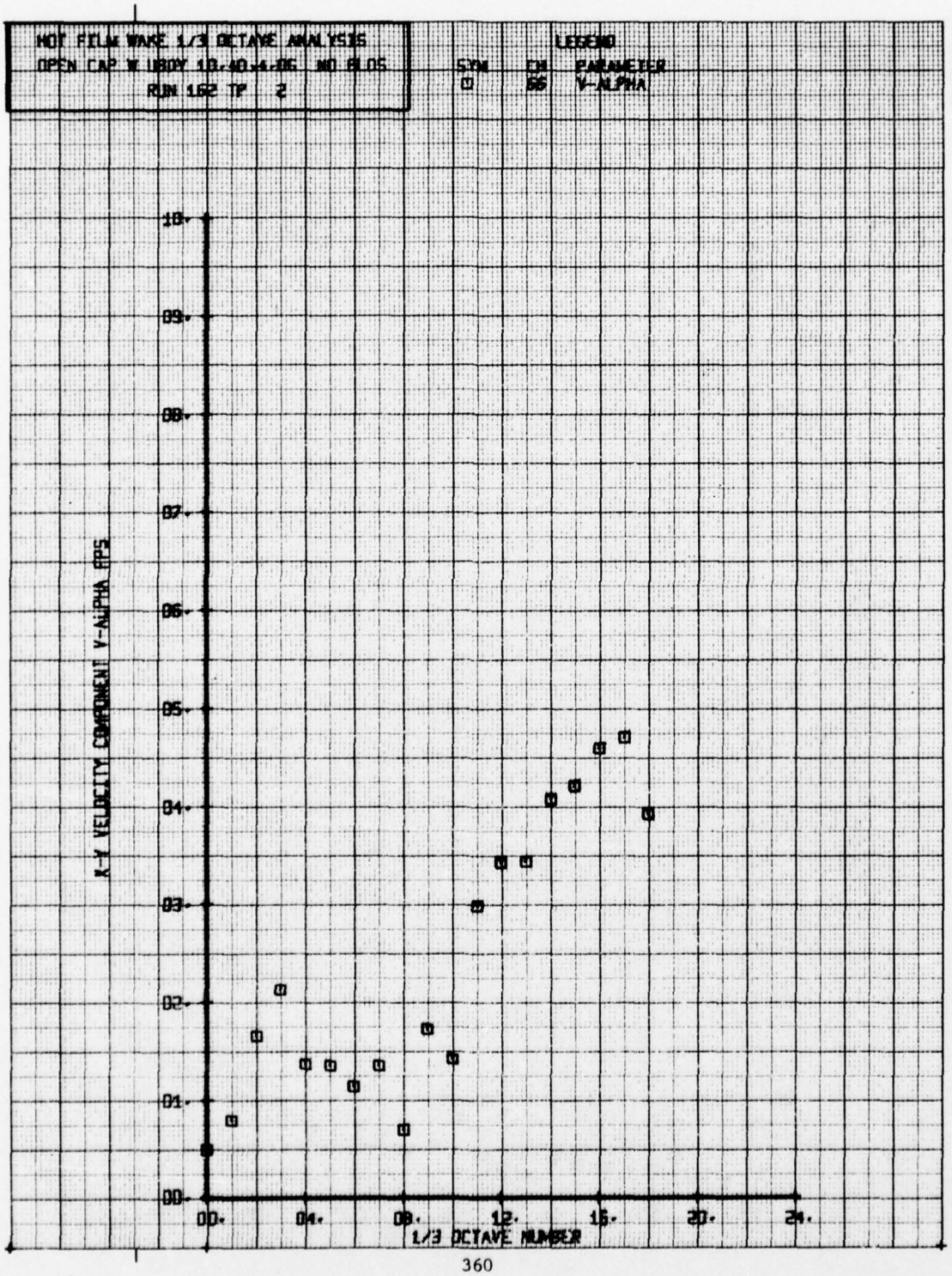

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBDY 10.40.4.06 NO BLOS
RUN 162 TP 4
LEGEND
SYM DK PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
10.
09.
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1/3 OCTAVE NUMBER

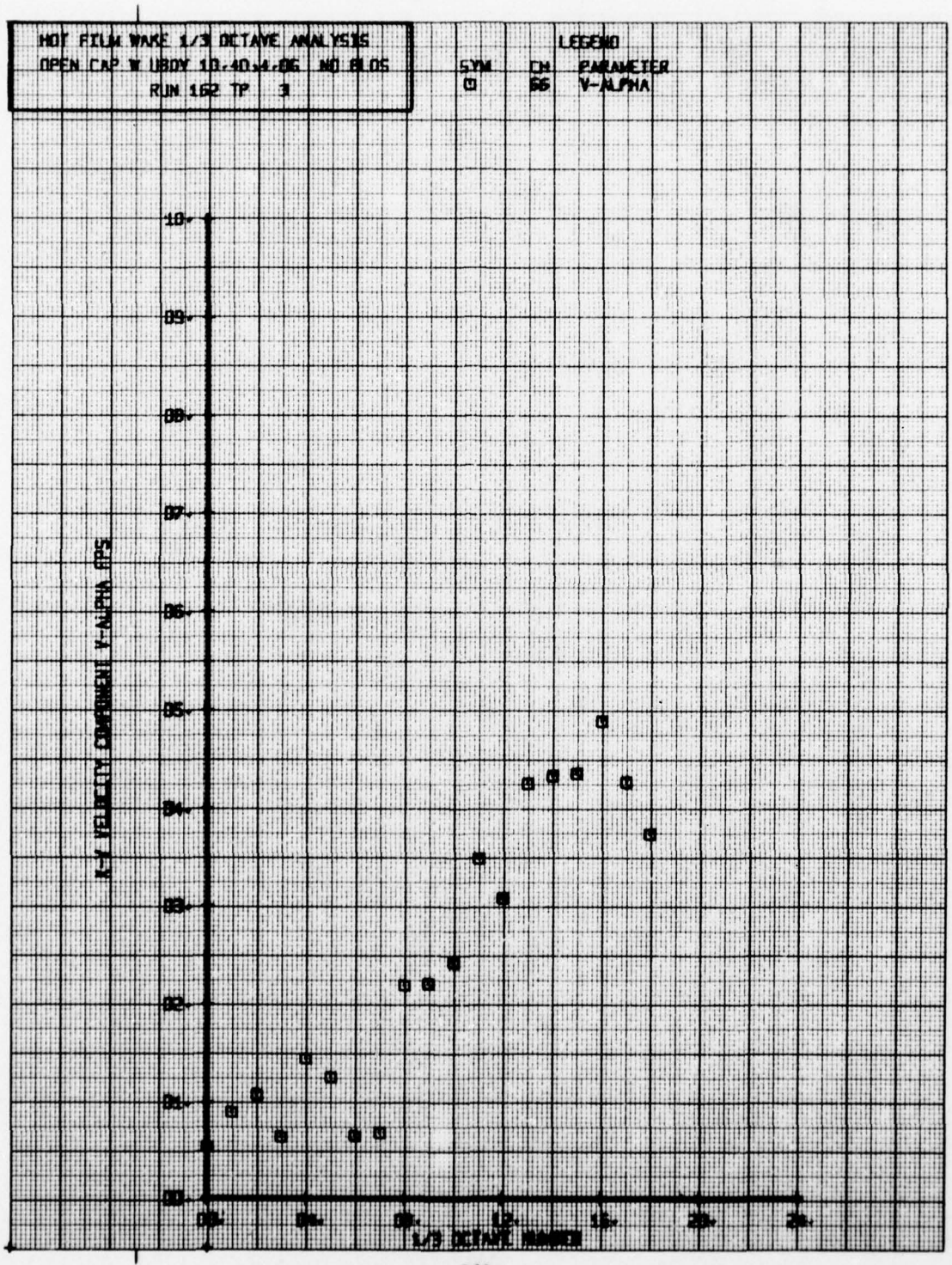

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W BODY 10.40.4.0G NO BLDS
RUN 162 TP 5
LEGEND
SYM CH PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER
10.
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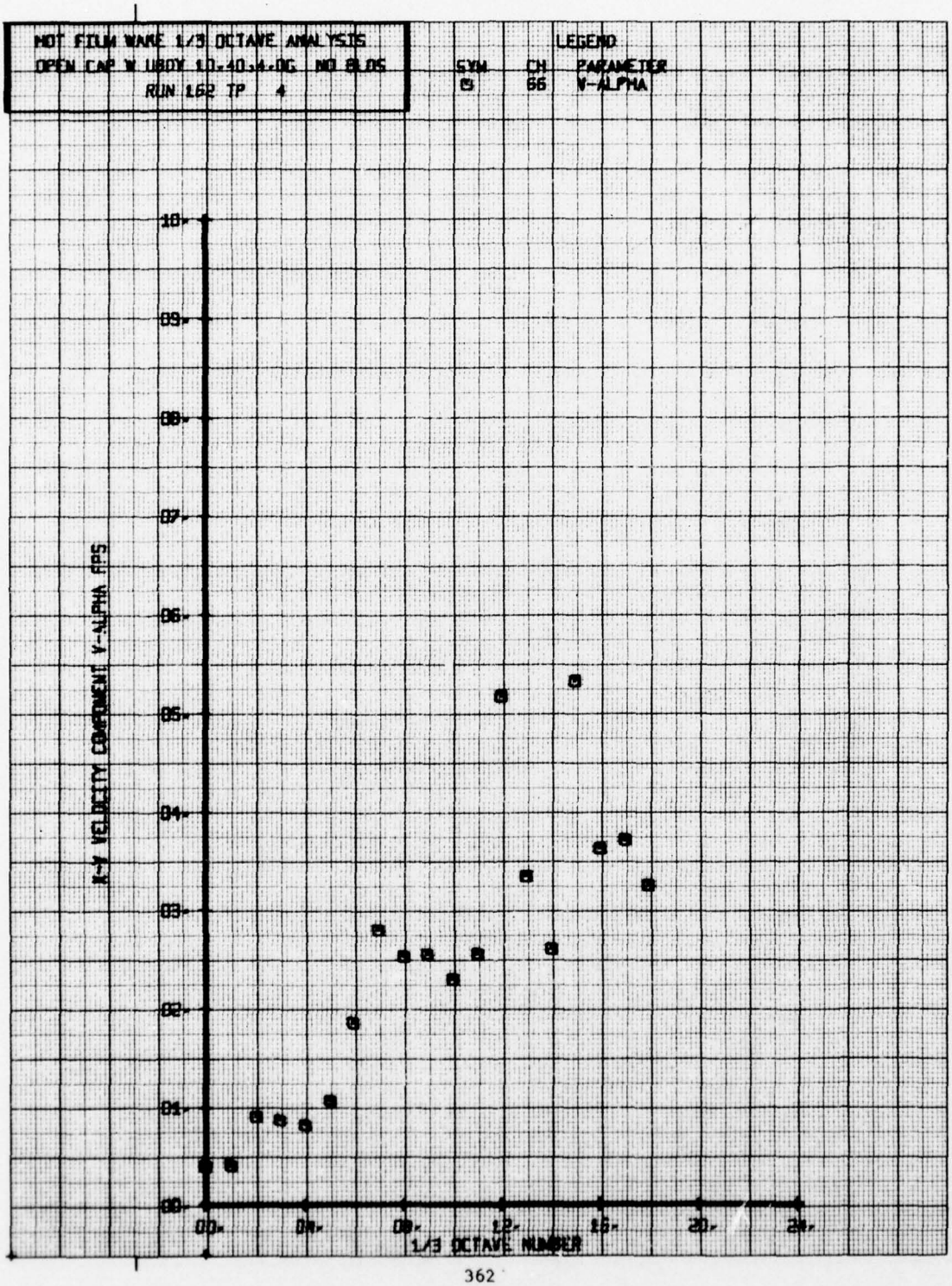

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBDY 10.40.4.06 NO BLOS
RUN 162 TP 6
LEGEND
SYM CM PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER
10.
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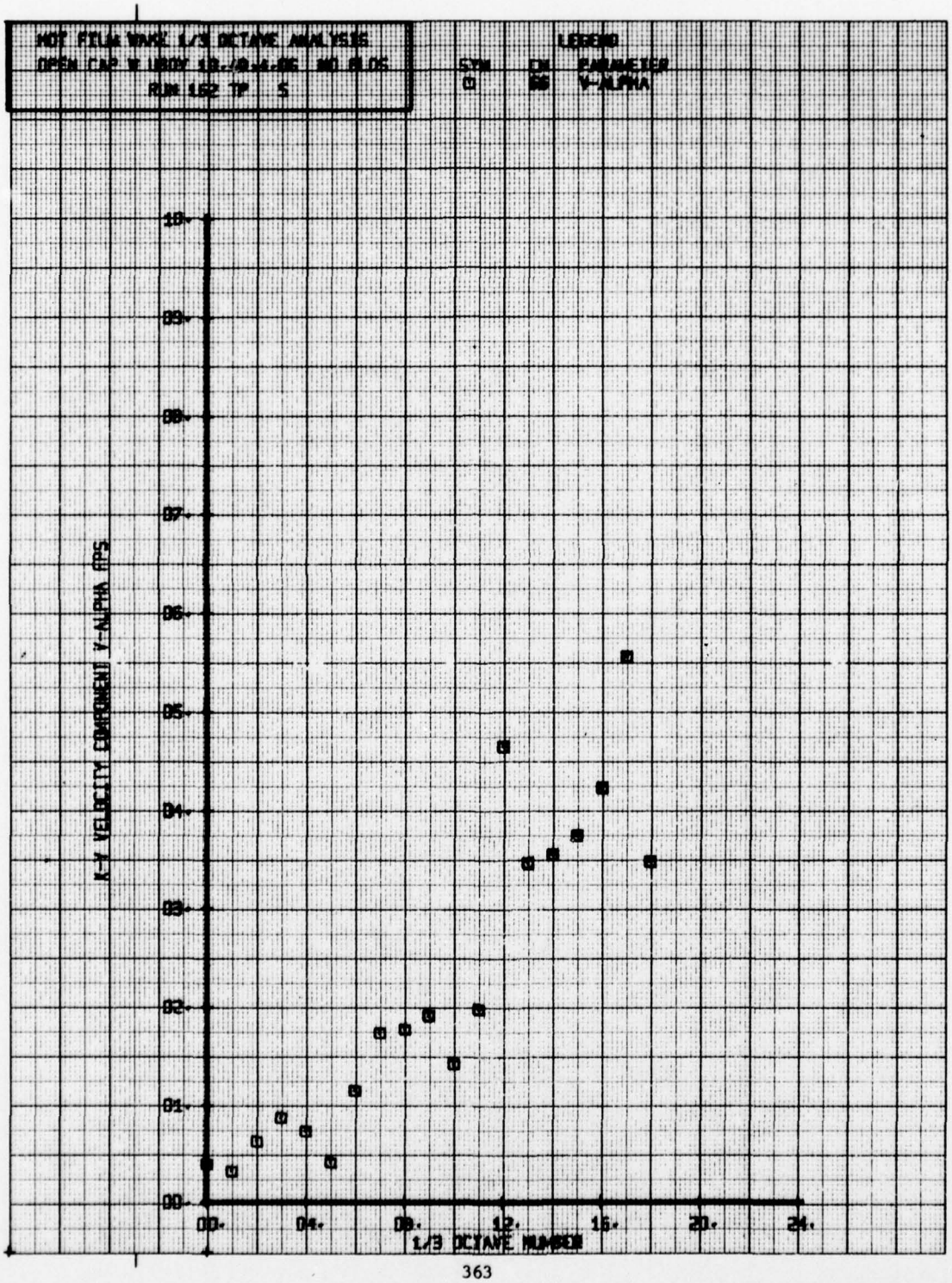

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY $0.40.4.0G NO BLOS
RUN 152 TP 7
LEGEND
SYM CH PARAMETER
0 65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER
10.
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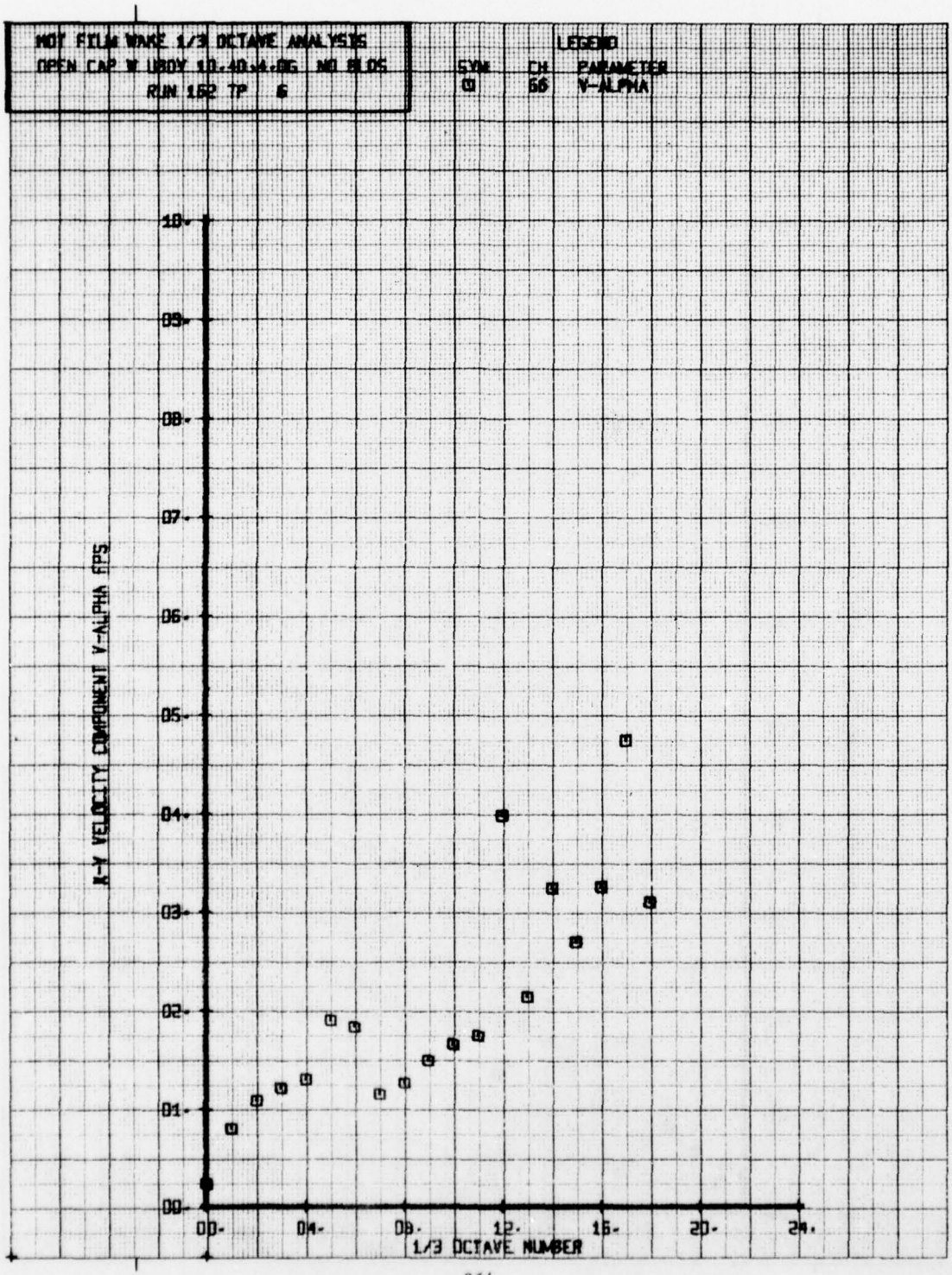

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W LBODY 10.40.4.06 NO BLDG
RUN 167 TP 8
LEGEND
SYM ICH PARAMETER
0 05 BETA
LATERAL FLOW ANGLE, BETA -- DEGREES
1/3 OCTAVE NUMBER
16.
09.
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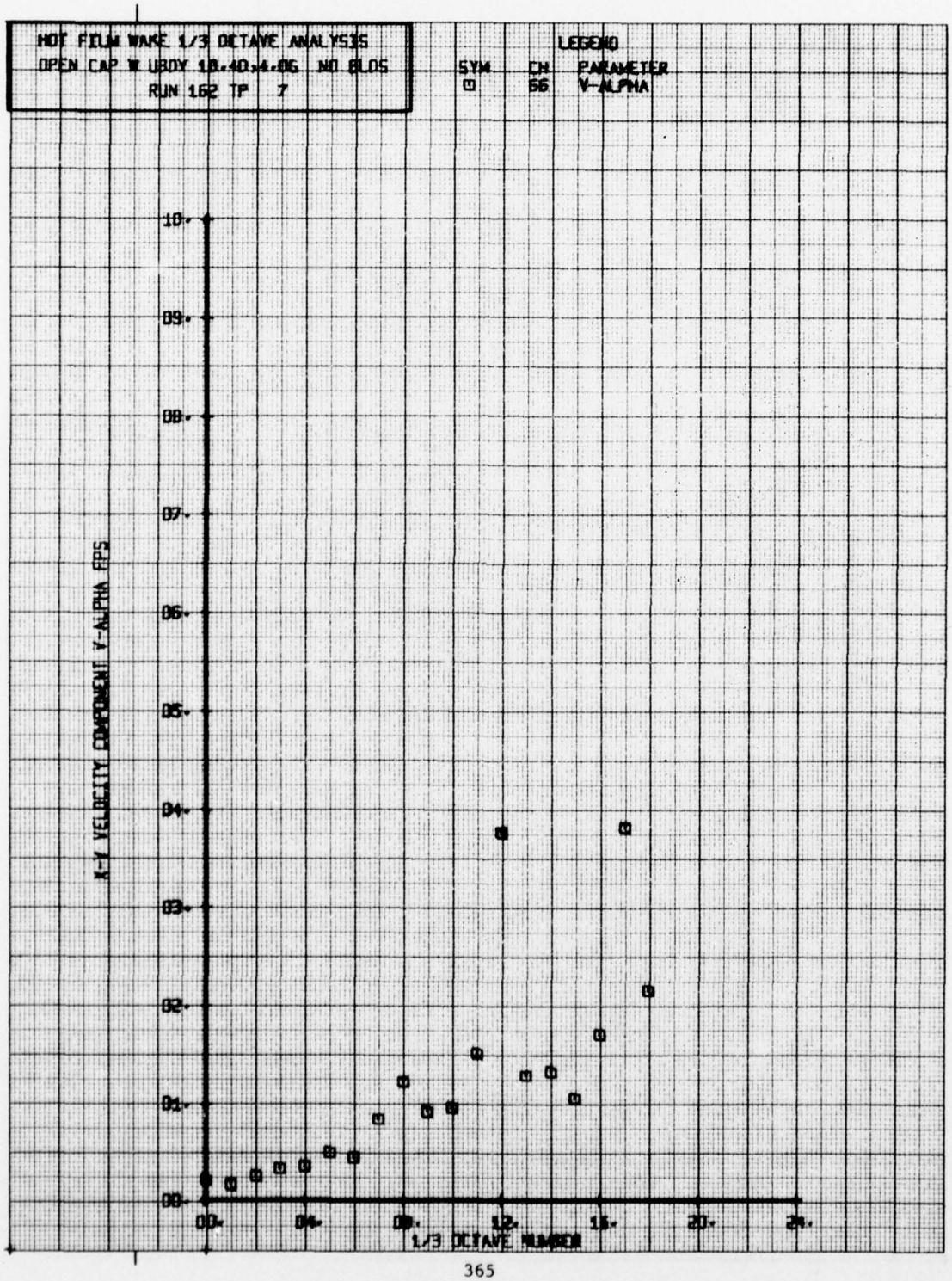

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBDY 10.40-6.0G NO BLDS
RUN 162 TP 2
LEGEND
SYM CH PARAMETER
66 V-ALPHA
10.
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X-Y VELOCITY COMPONENT V-ALPHA FPS
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1/3 OCTAVE NUMBER

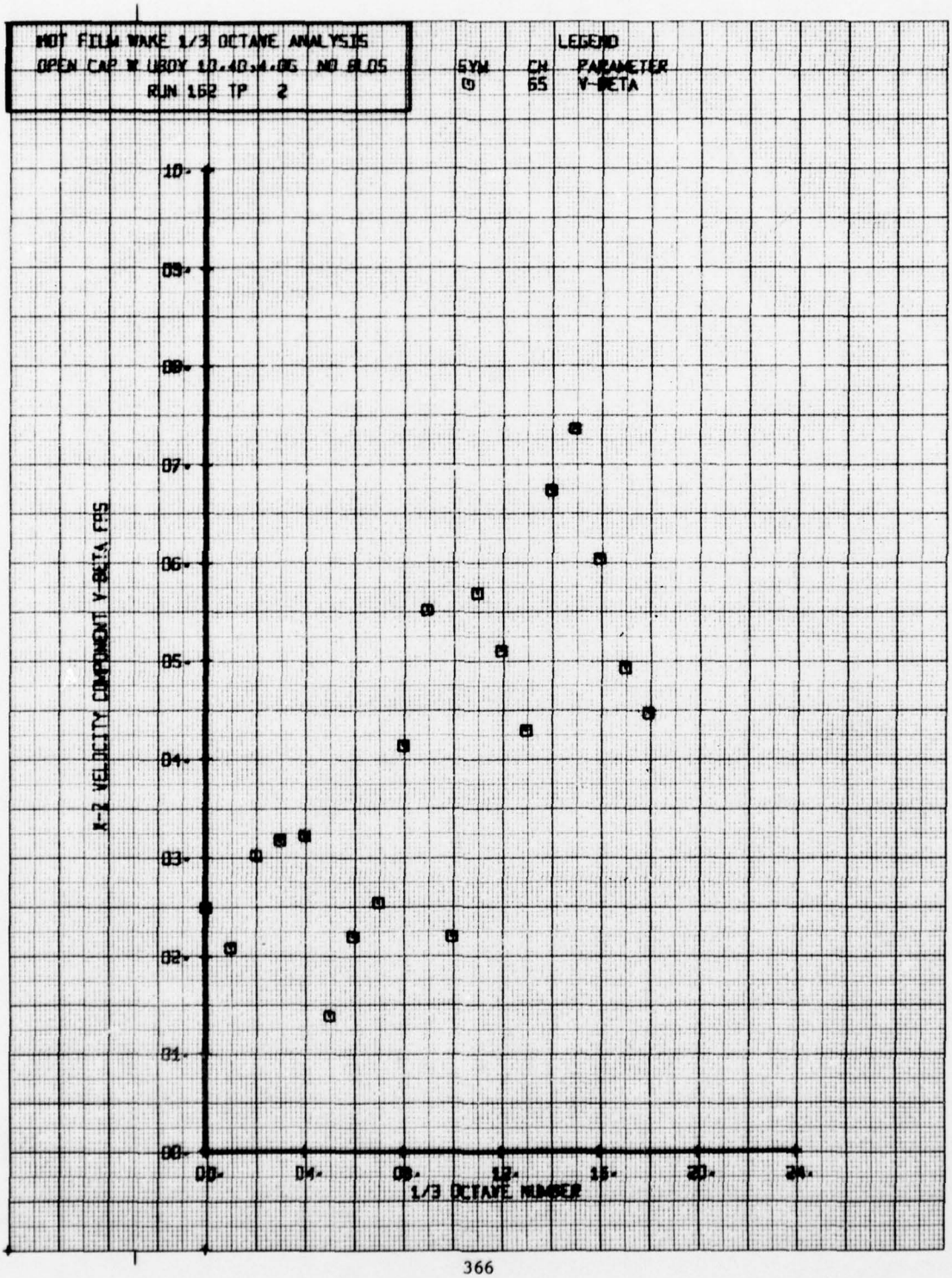

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBDY 10.40,4.06 NO BLOS
RUN 162 TP 3
LEGEND
SYM CH PARAMETER
66 V-ALPHA
10.
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24.
1/3 OCTAVE NUMBER

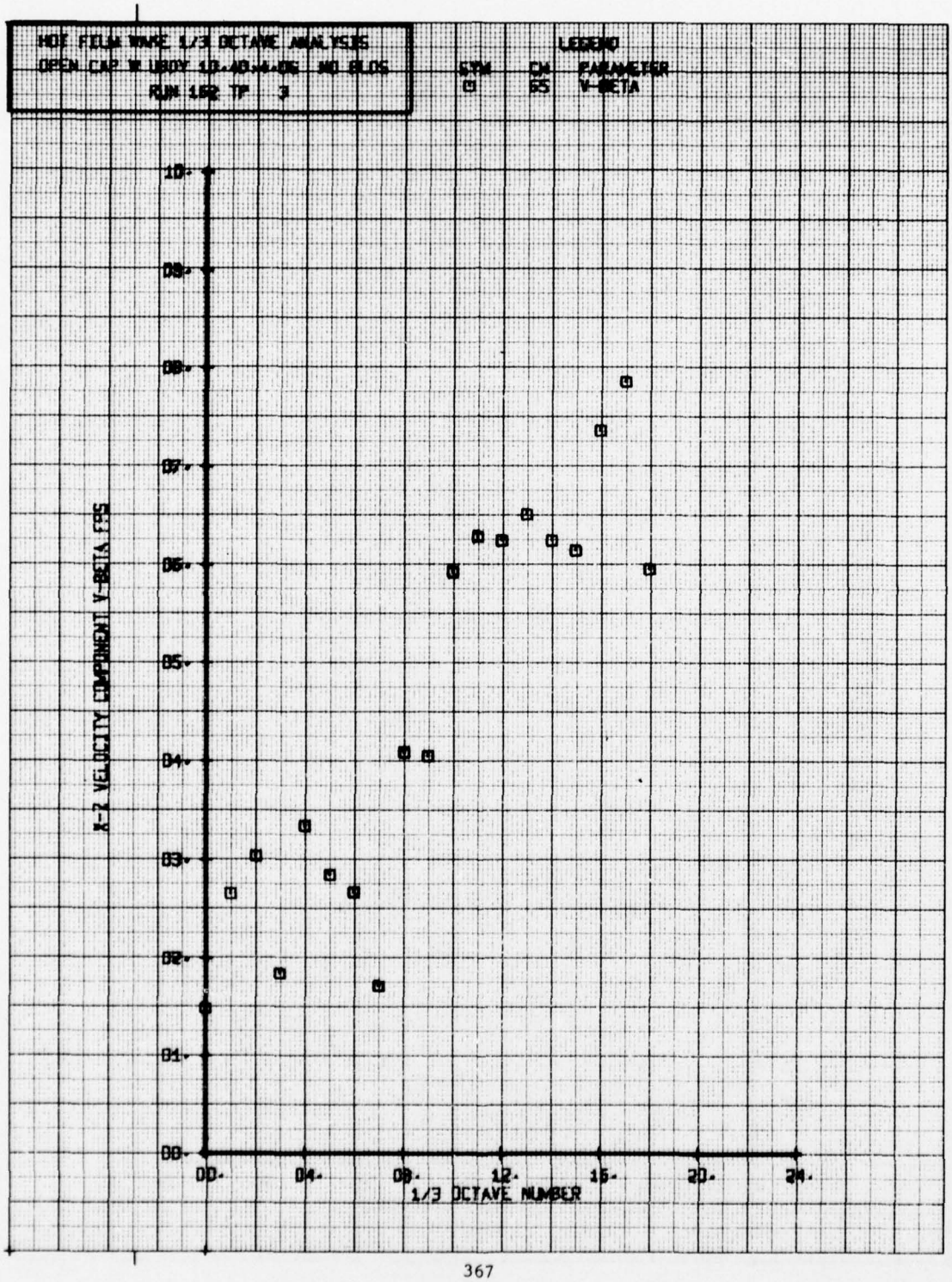

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBODY 10-40,4-DG NO BLOS
RUN L62 TP 4
LEGEND
SYM CH PARAMETER
66 V-ALPHA
10
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U-V VELOCITY COMPONENT V-ALPHA RMS
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24
1/3 OCTAVE NUMBER

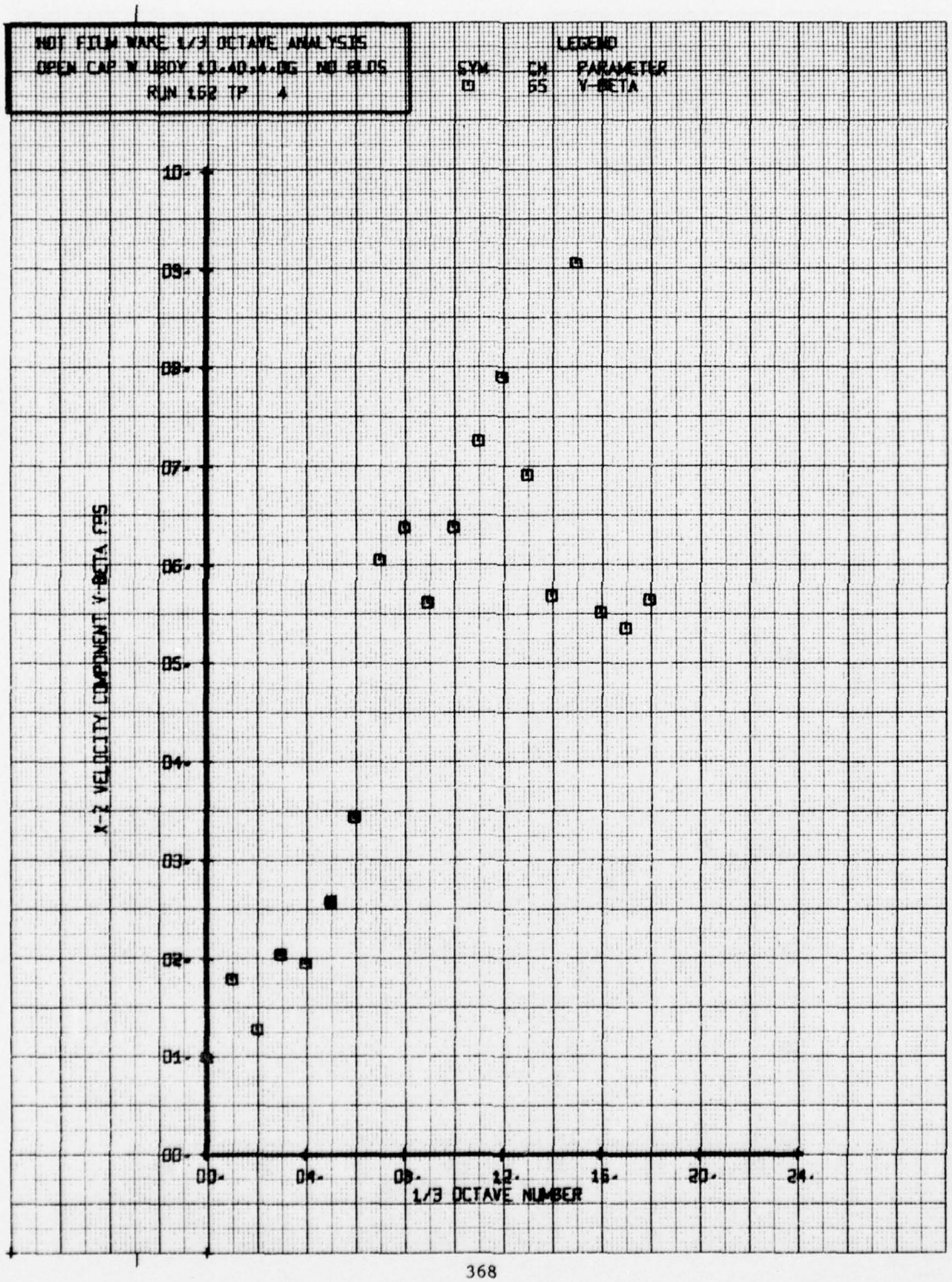

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOV 10./0.+4.0S NO BLOS
RUN 162 TP 5
LEGEND
SYM CH PARAMETER
0 06 V-ALPHA
10.
09.
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X-Y VELOCITY COMPONENT V-ALPHA FPS
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24.
1/3 OCTAVE NUMBER

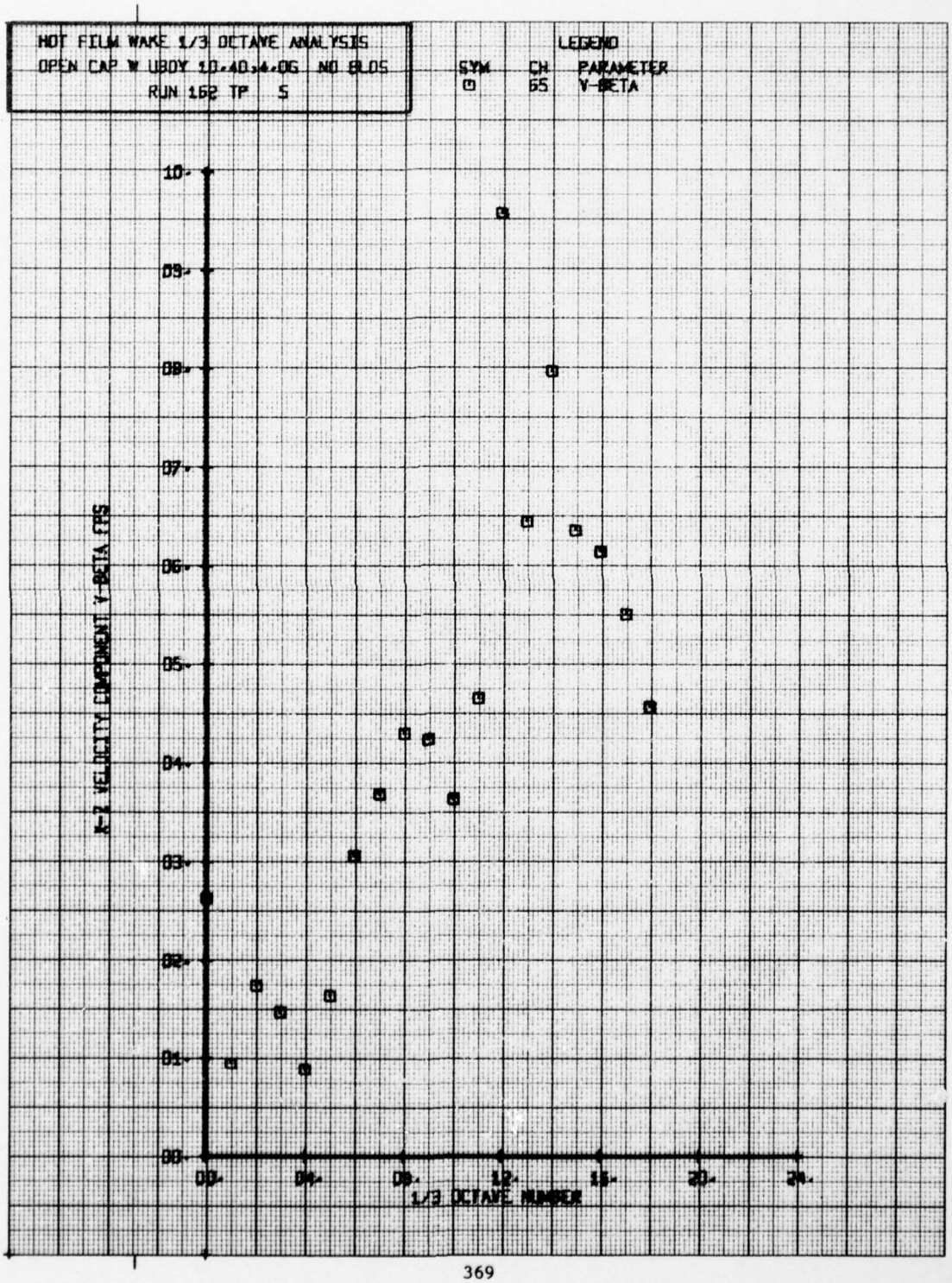

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 10.40.4.06 NO BLOS
RUN 162 TP 6
LEGEND
SYM CH PARAMETER
□ 66 V-ALPHA
A-V VELOCITY COMPONENT V-ALPHA FPS
10.
09.
08.
07.
06.
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04.
08.
12.
16.
20.
24.
1/3 OCTAVE NUMBER

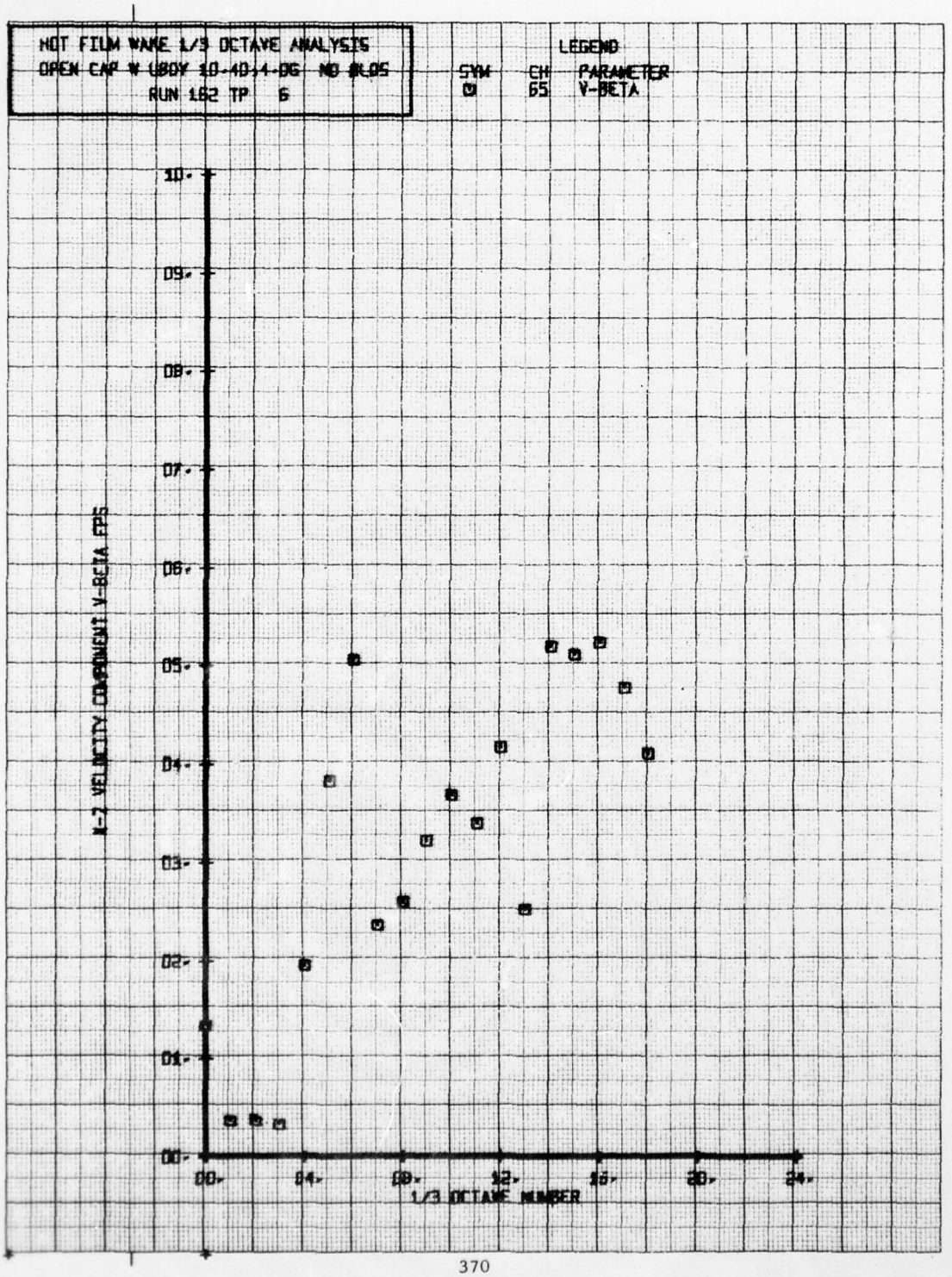

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 18.40.4.06 NO BLOS
RUN 162 TP 7
LEGEND
SYM CH PARAMETER
56 V-ALPHA
10.
09.
08.
07.
06.
05.
04.
03.
02.
01.
00.
X-V VELOCITY COMPONENT V-ALPHA FPS
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16.
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24.
1/3 OCTAVE NUMBER

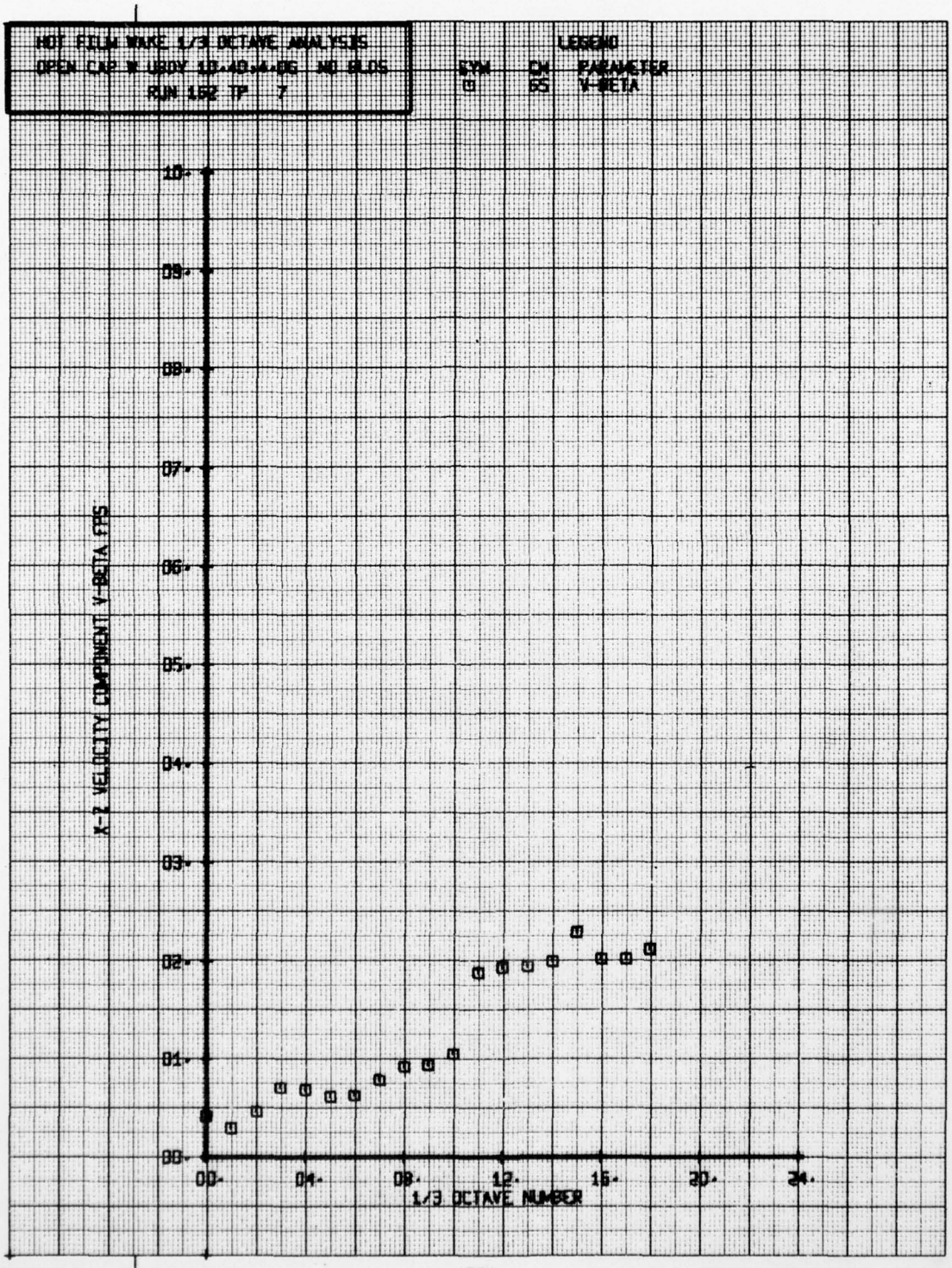

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 10.40,4.06 NO BLOS
RUN 162 TP 2
LEGEND
SYM CH PARAMETER
65 V-BETA
X-2 VELOCITY COMPONENT V-BETA FPS
1/3 OCTAVE NUMBER
10.
09.
08.
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06.
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04.
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12.
16.
20.
24.

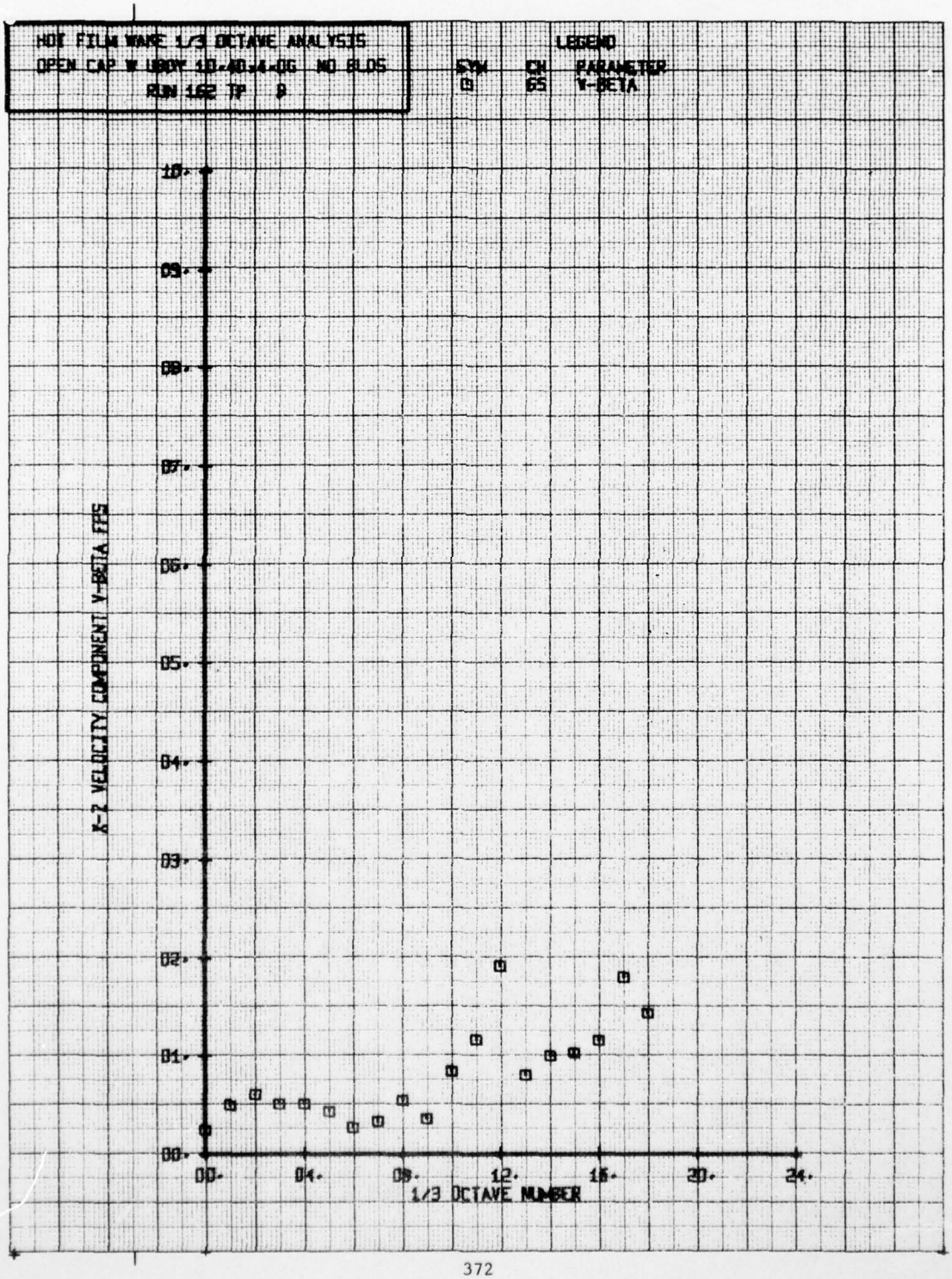

HOT FILM WAVE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 10.AB.4.05 NO BLOS
RUN 152 TP 3
LEGEND
SYM CM PARAMETER
55 V-BETA
10.
09.
08.
07.
06.
05.
04.
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00.
X-2 VELOCITY COMPONENT V-BETA FPS
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12.
16.
20.
24.
1/3 OCTAVE NUMBER

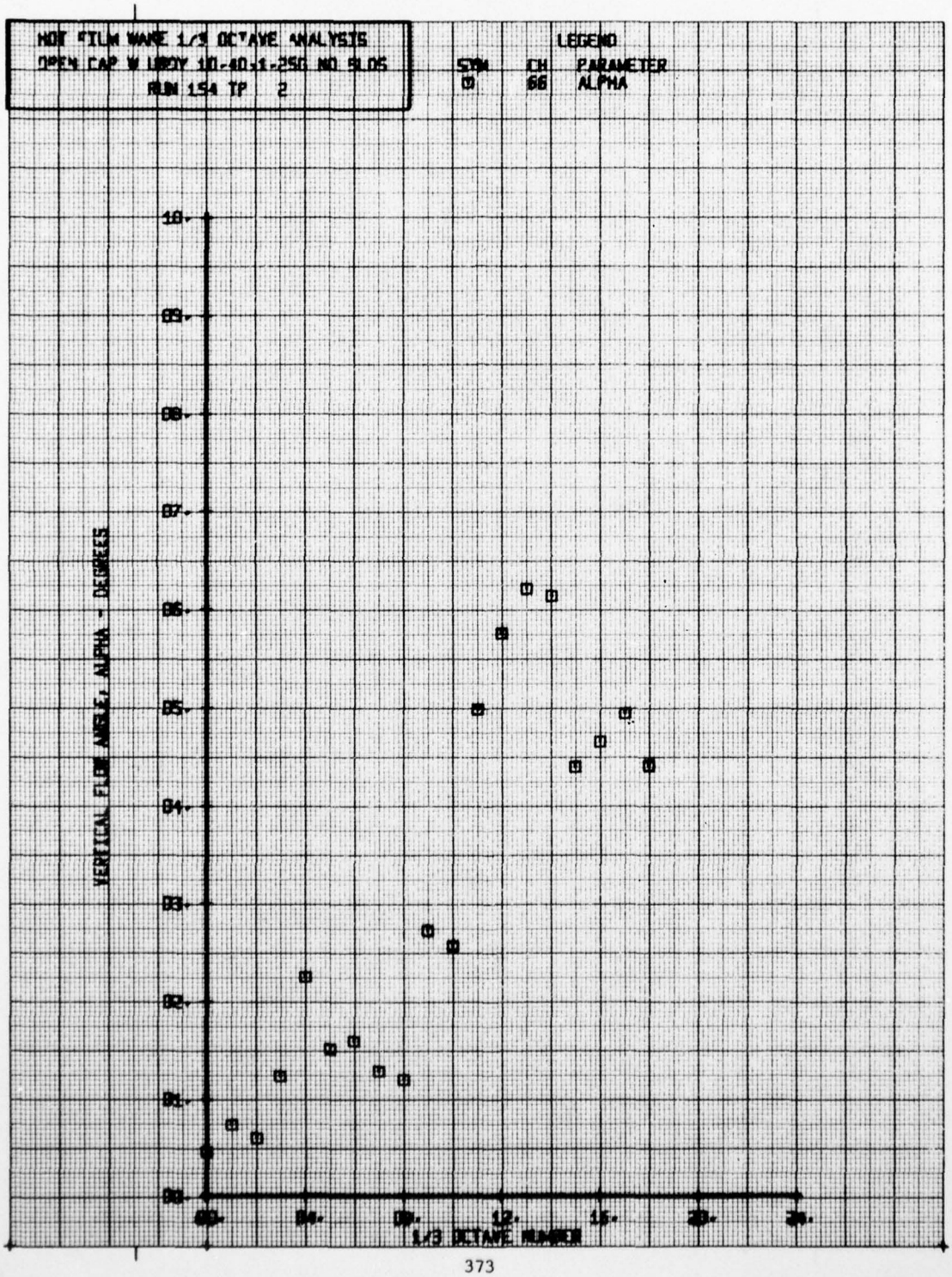

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBDY 10.40.4.DG NO BLDS
RUN 162 TP 4
LEGEND
SYM CH PARAMETER
65 V-BETA
X-Z VELOCITY COMPONENT V-BETA FPS
1/3 OCTAVE NUMBER
10.
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12.
16.
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24.

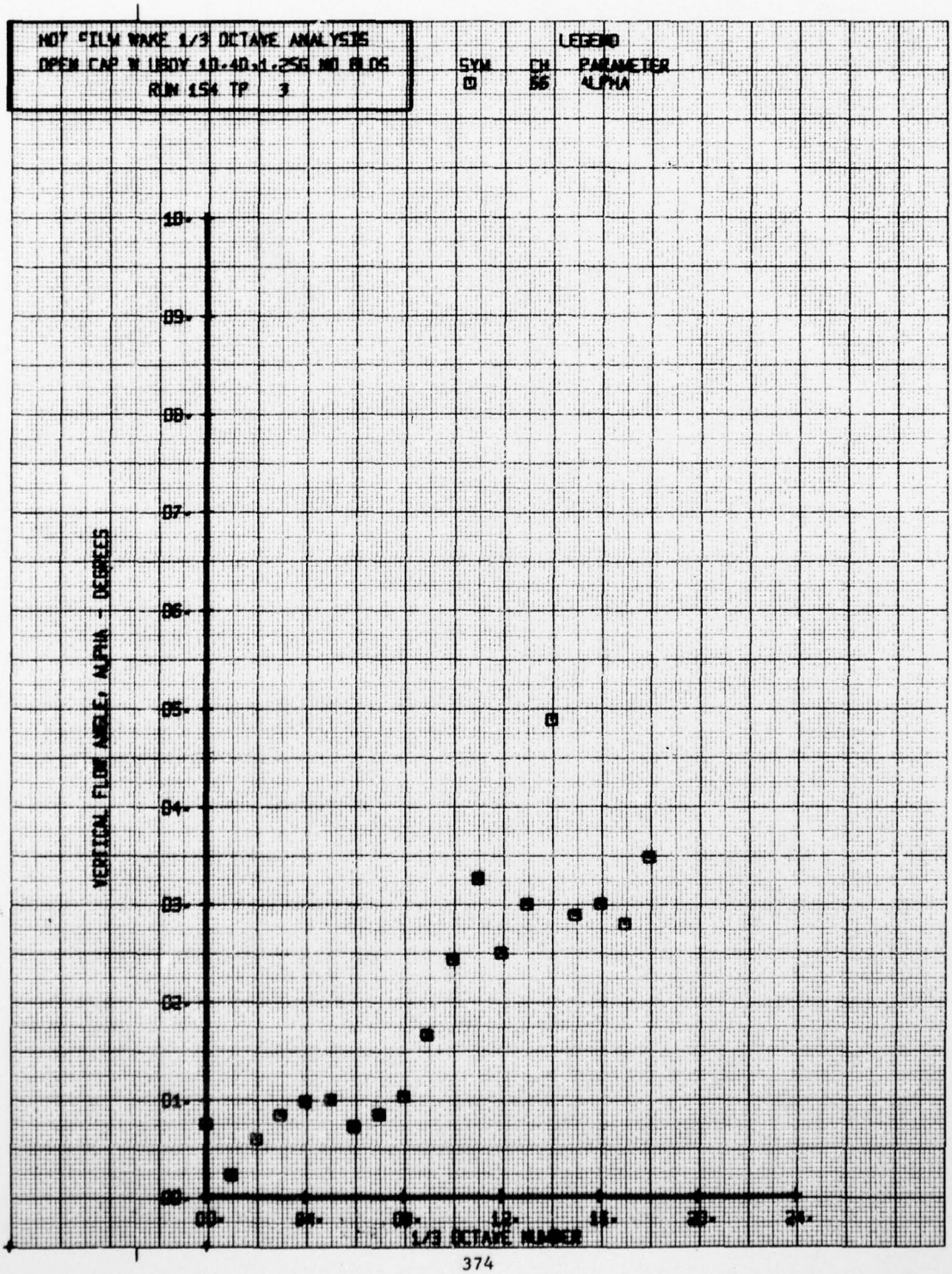

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBDY 10.40,4.06 NO BLDS
RUN 162 TP 5
LEGEND
SYM CH PARAMETER
65 V-BETA
10.
09.
08.
07.
06.
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K-2 VELOCITY COMPONENT V-BETA FPS
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06.
09.
12.
15.
20.
24.
1/3 OCTAVE NUMBER

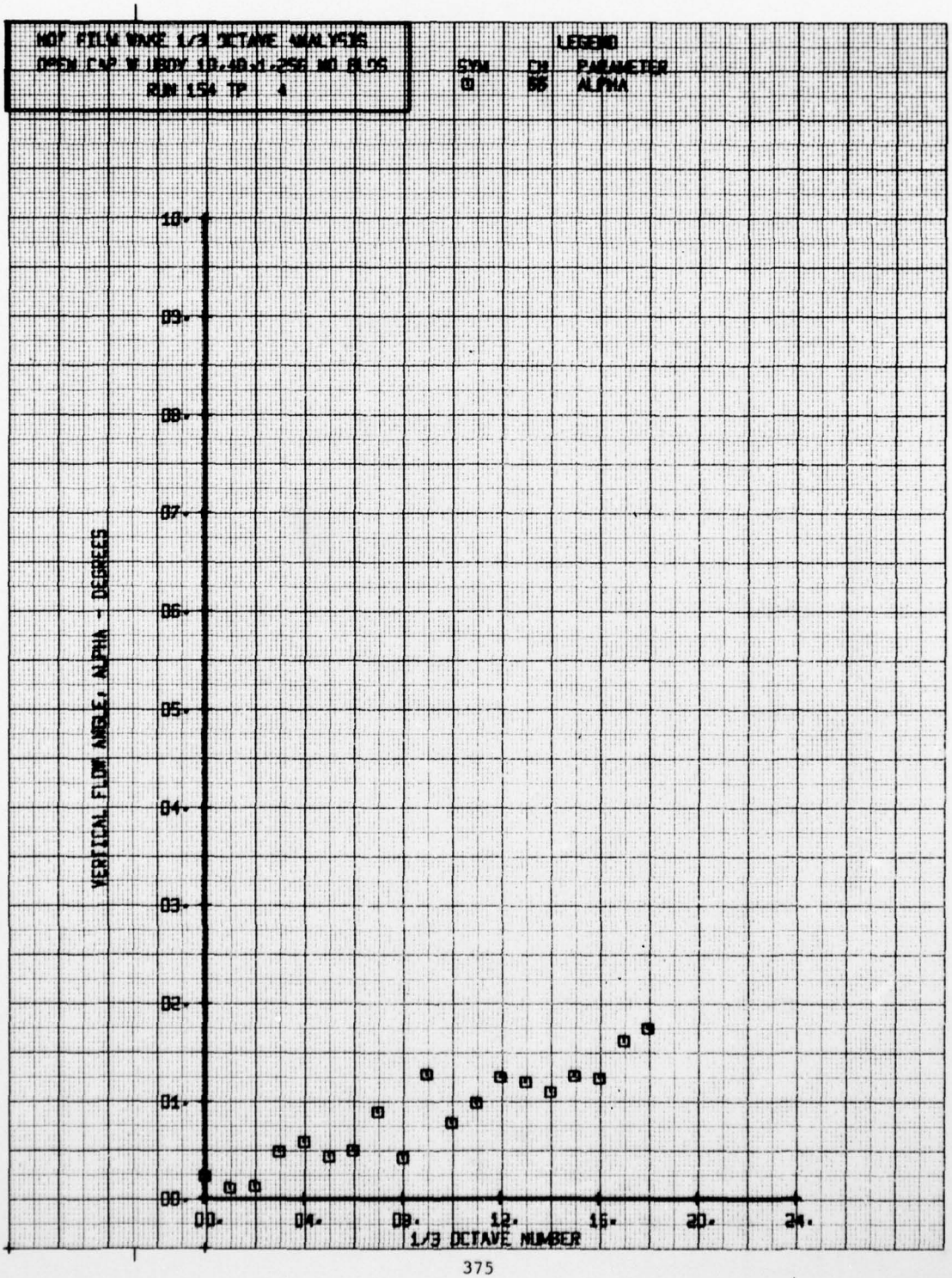

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 10-4D/4-DG NO BLOS
RUN 162 TP 6
LEGEND
SYM CH PARAMETER
65 V-BETA
10.
09.
08.
07.
06.
05.
04.
03.
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00. 04. 08. 12. 16. 20. 24.
1/3 OCTAVE NUMBER
K-2 VELOCITY COMPONENT V-BETA FPS

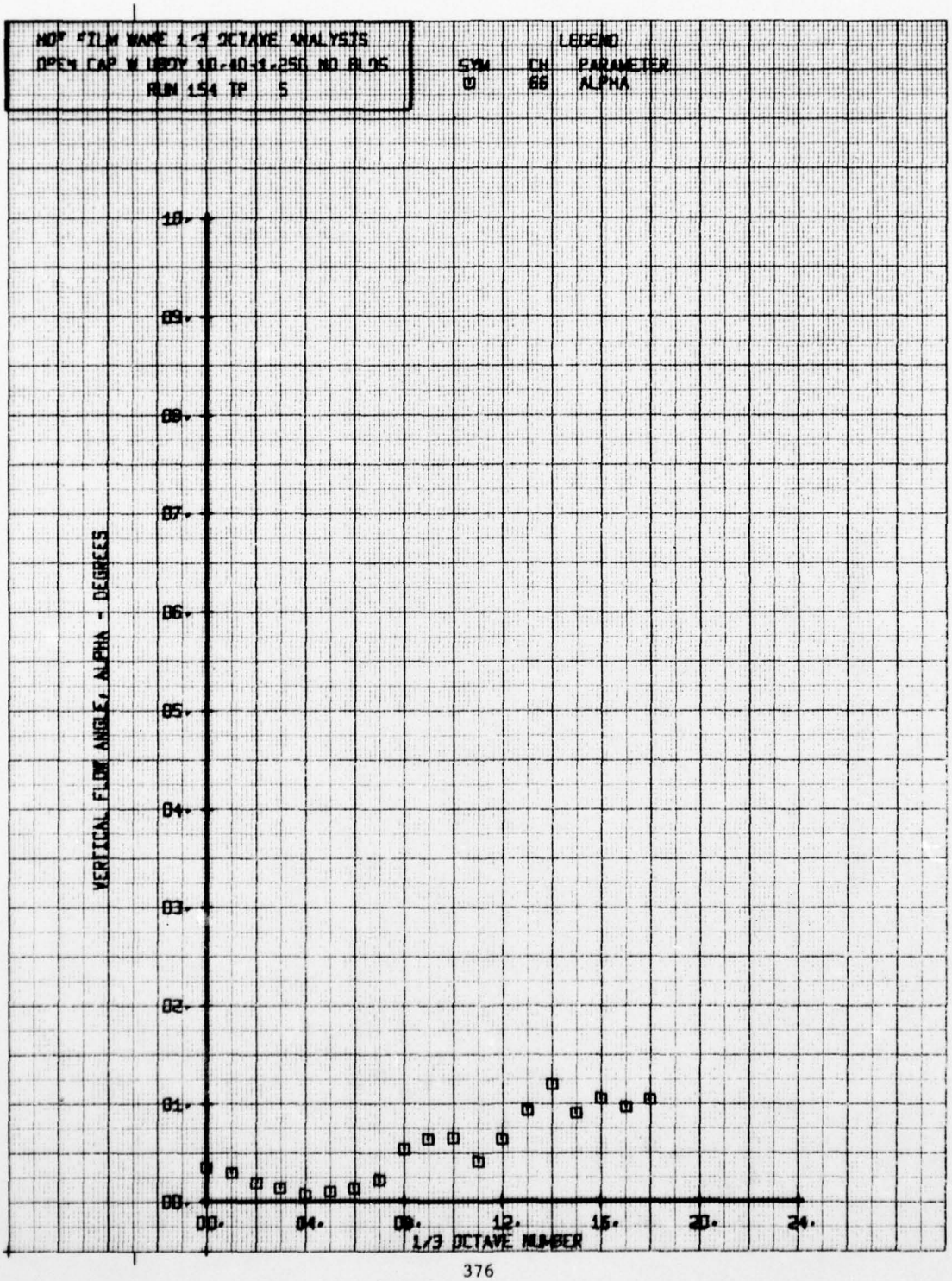

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBDY 10.40.4.DG NO BLOS
RUN 182 TP 7
LEGEND
SYM CH PARAMETER
B 65 V-BETA
10.
09.
08.
07.
06.
05.
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00.
X-2 VELOCITY COMPONENT V-BETA FPS
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04.
08.
12.
16.
20.
24.
1/3 OCTAVE NUMBER

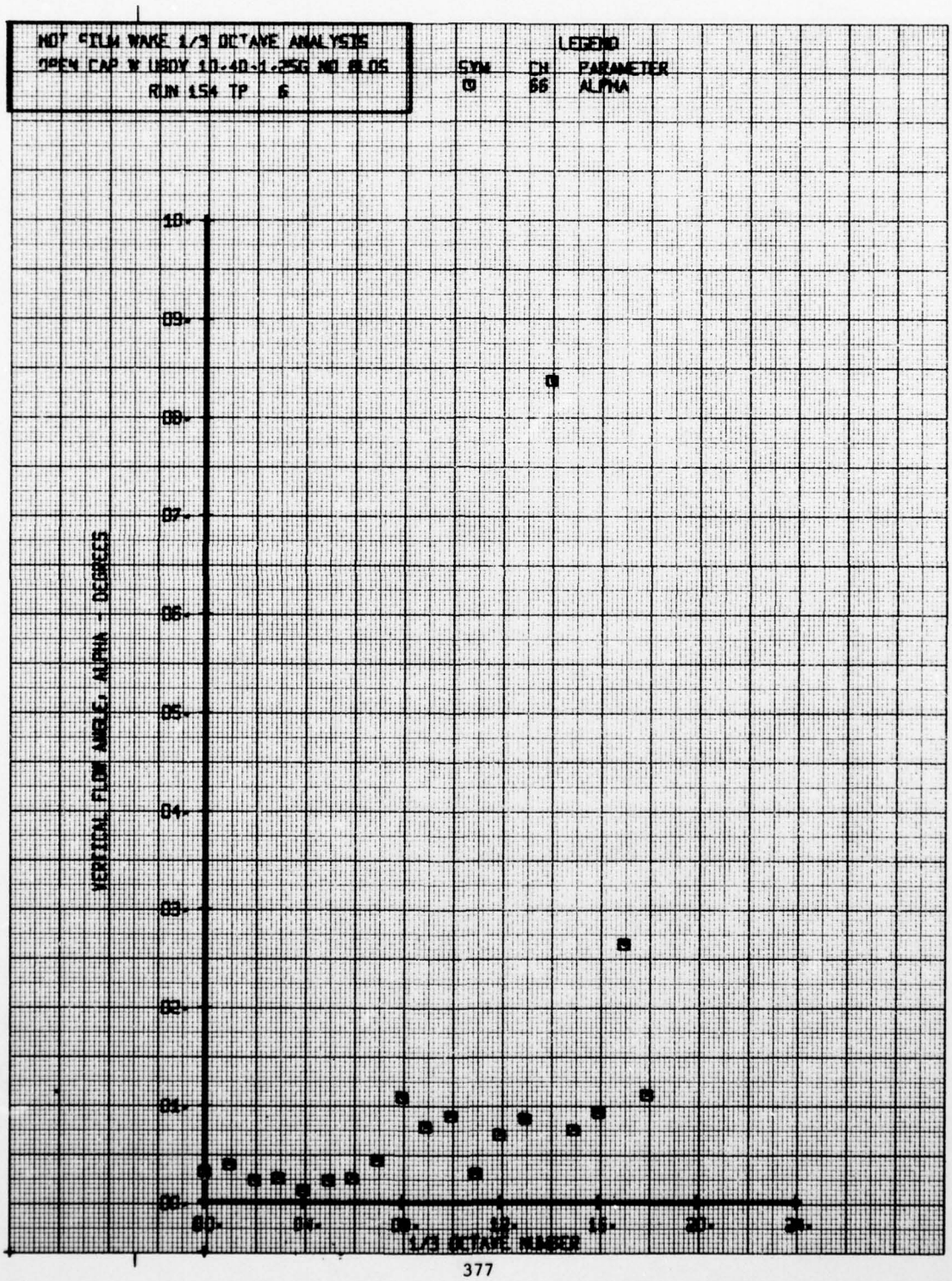

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W BODY 10.40x4.00 NO BLDS
RUN 162 TP 8
LEGEND
SYM CH PARAMETER
65 V-BETA
10.
09.
08.
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06.
05.
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X-2 VELOCITY COMPONENT V-BETA FPS
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16.
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24.
1/3 OCTAVE NUMBER

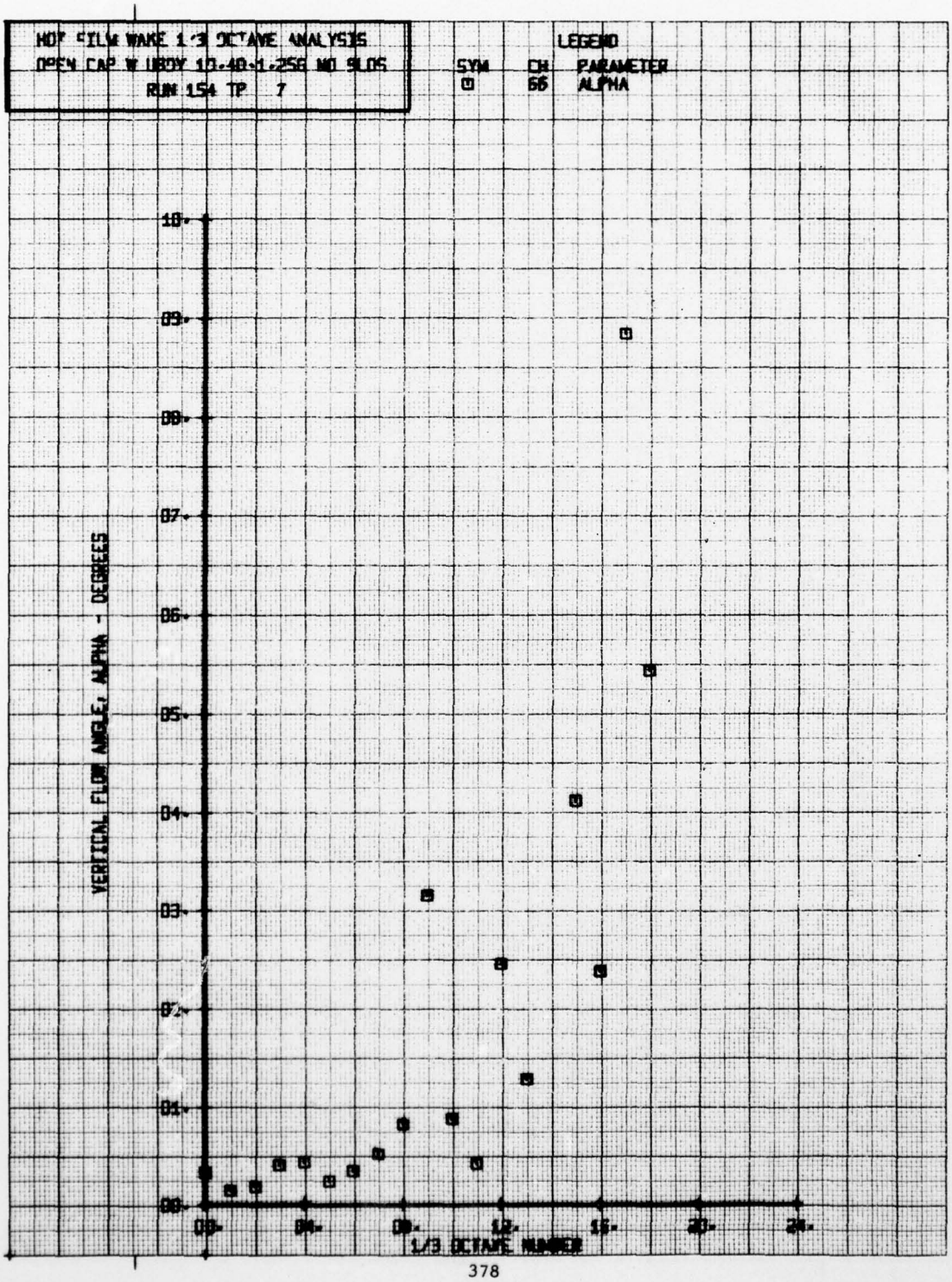

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W LEDDY 10-40-1-250 NO BLDG
RUN 154 TP 2
LEGEND
SYM CH PARAMETER
66 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

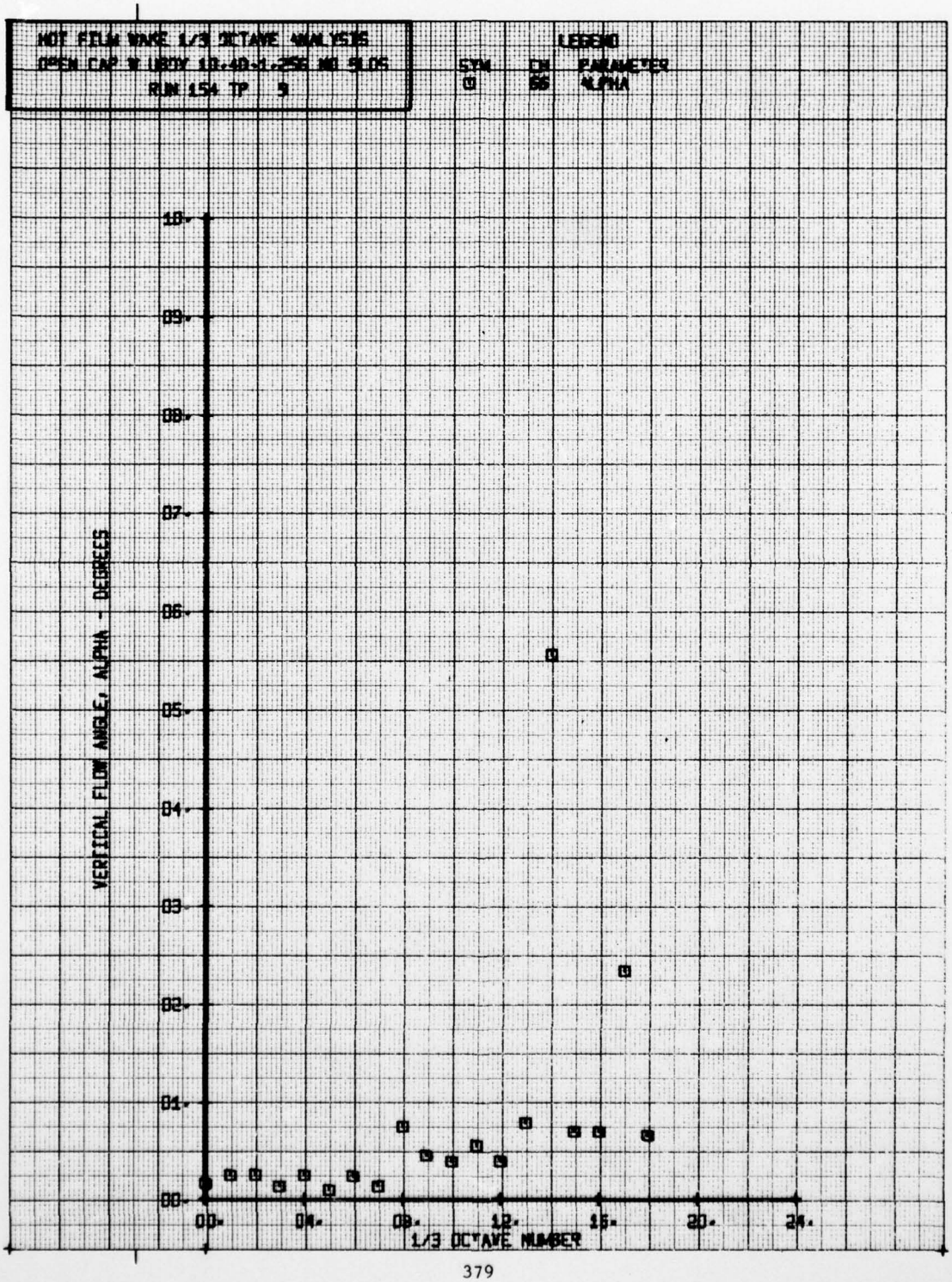

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBDY 10.40,1.25G NO BLOS
RUN 154 TP 3
LEGEND
SYM CH PARAMETER
□ 56 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

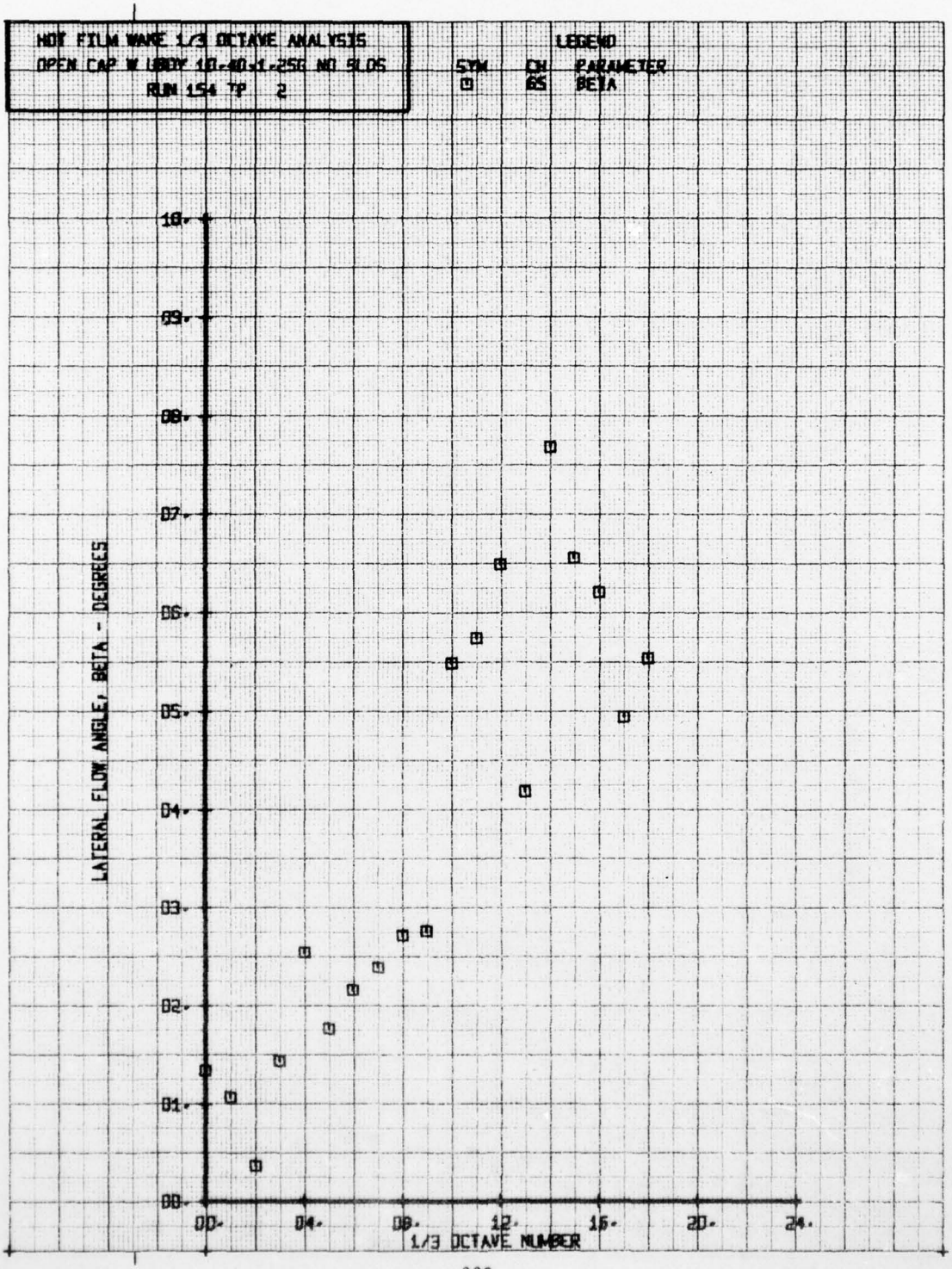

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W HBDY 10.40.1.256 NO BLDG
RUN 154 TP 4
LEGEND
SYM
CH
PARAMETER
ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

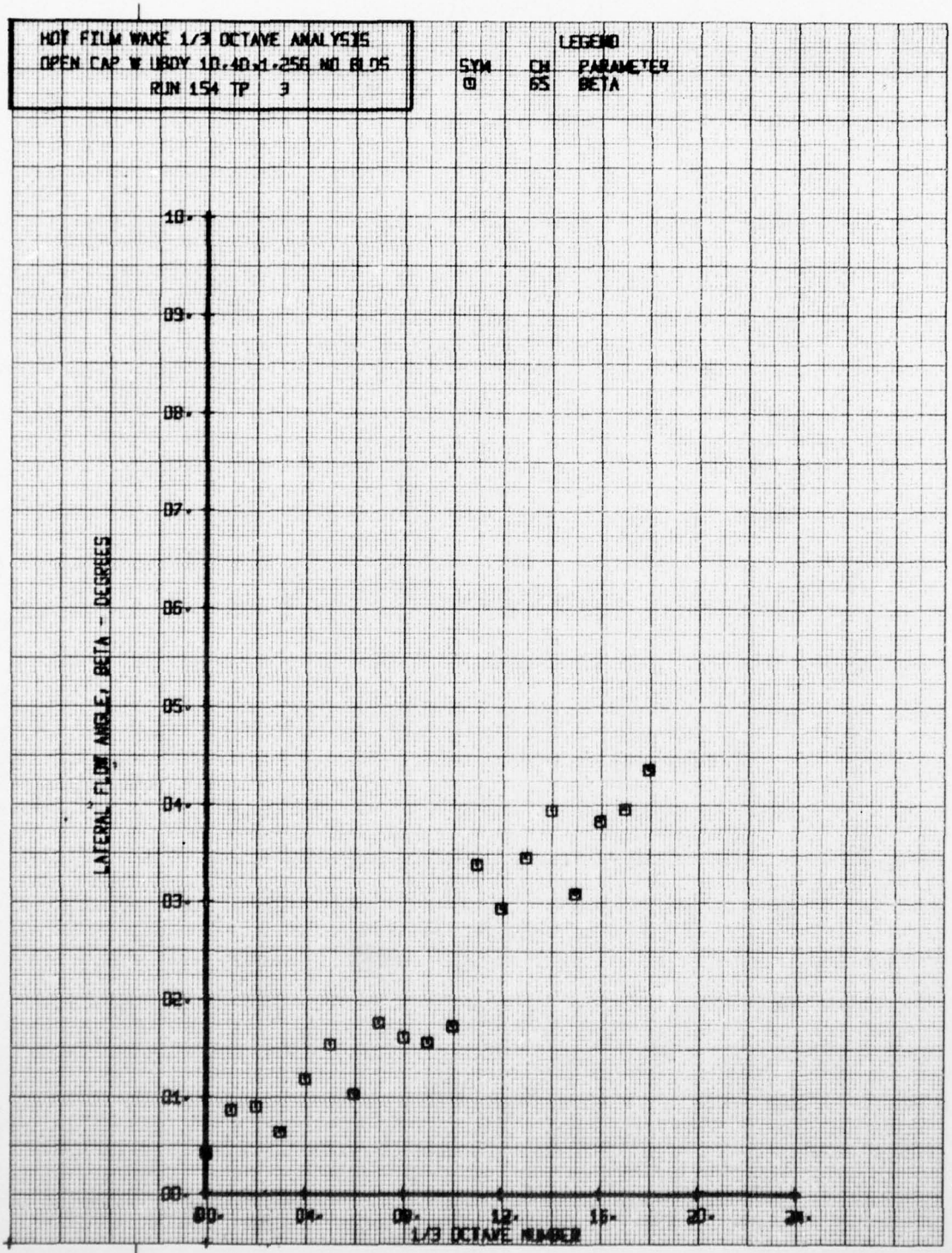

NOF FILM WAVE 1/3 OCTAVE ANALYSIS
OPEN CAP W LEDDY 10.-40-1.25G NO BLDS
RUN 154 TP 5
LEGEND
SYM CH PARAMETER
66 ALPHA
10.
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VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

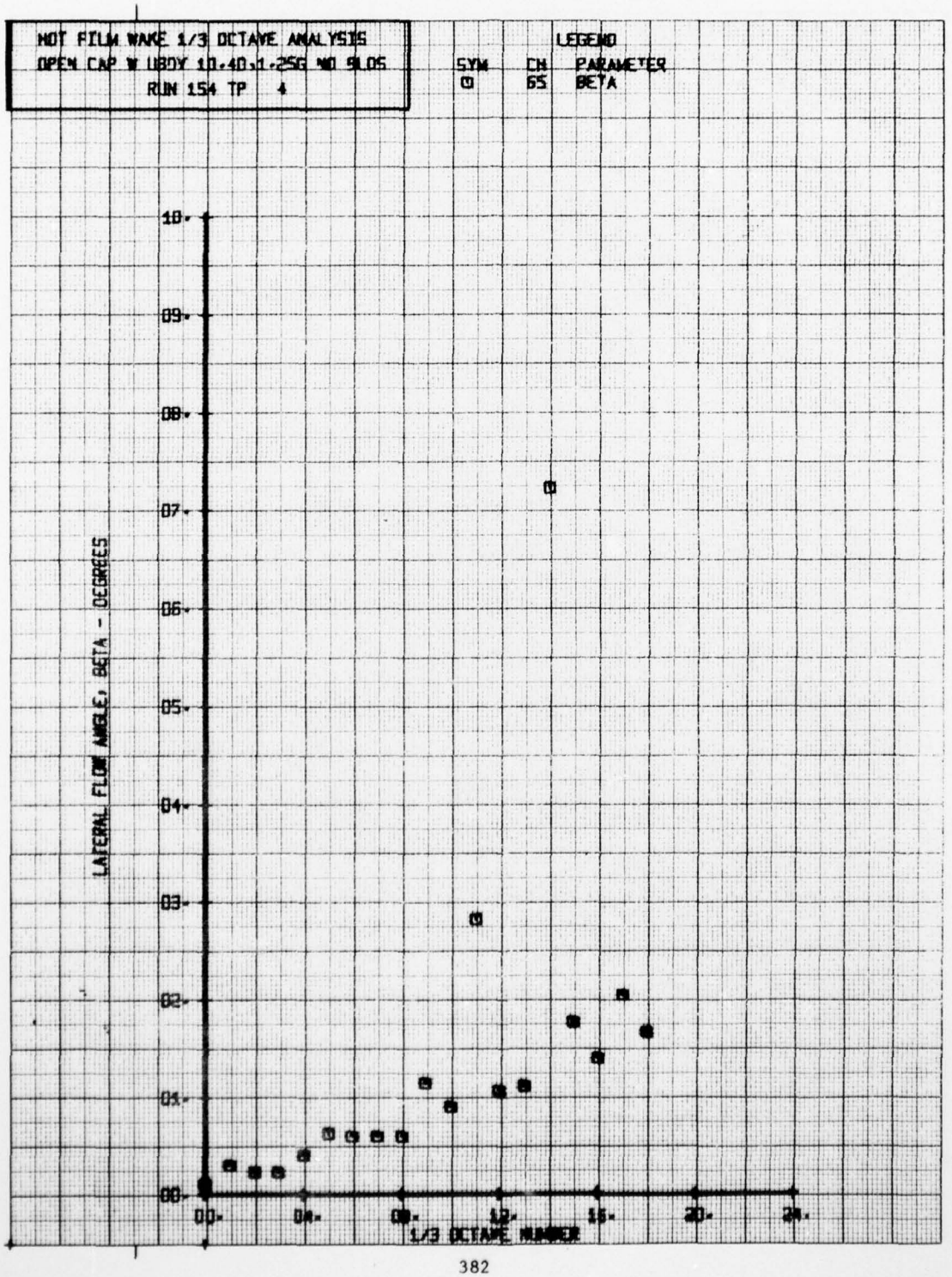

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W BODY 10-40-1-25G NO BLOS
RUN 154 TP 6
LEGEND
SYM CH PARAMETER
66 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER

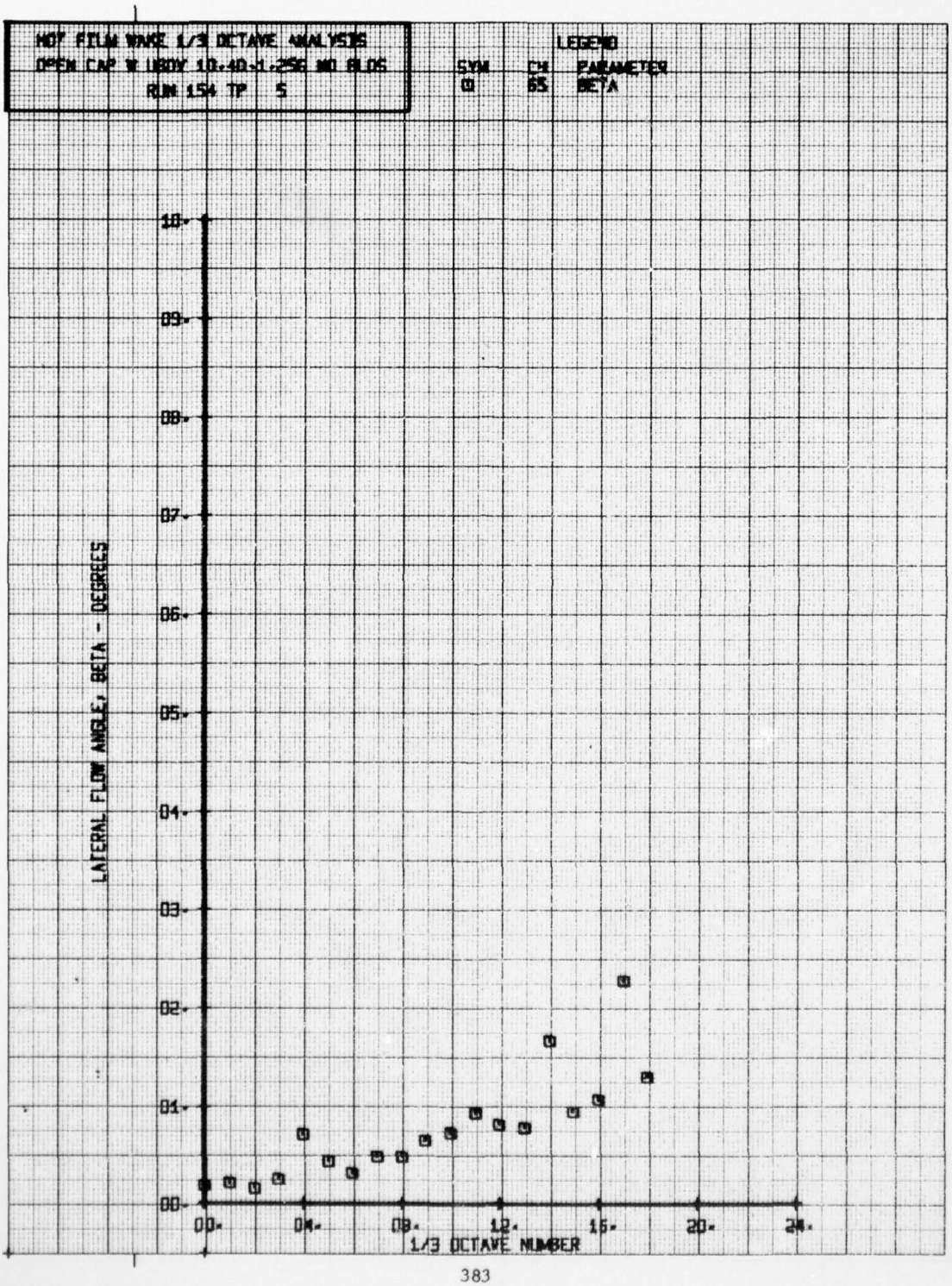

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 10.40-1.256 NO SLOS
RUN 154 TP 7
LEGEND
SYM CH PARAMETER
66 ALPHA
VERTICAL FLOW ANGLE, ALPHA - DEGREES
1/3 OCTAVE NUMBER


HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W BODY 10.40-1.256 MD SLOS
RUN 154 TP 9
LEGEND
SYM
CH
PARAMETER
66
ALPHA
10.
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VERTICAL FLOW ANGLE, ALPHA - DEGREES
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04.
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12.
16.
20.
24.
1/3 OCTAVE NUMBER


HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W LBODY 10-40-1.25G NO SLOS
RUN 154 TP 2
LEGEND
SYM CH PARAMETER
BS BETA
LATERAL FLOW ANGLE, BETA - DEGREES
10.
09.
08.
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16.
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24.
1/3 OCTAVE NUMBER

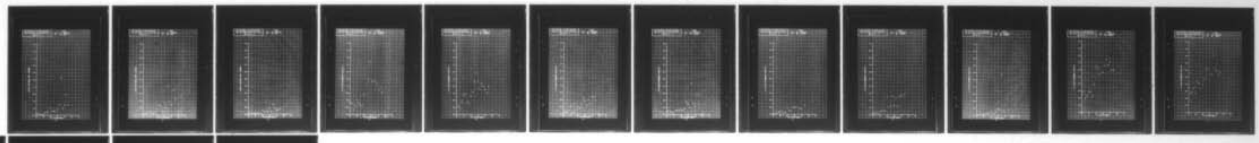

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBDY 10.40.1.256 NO BLDS
RUN 154 TP 3
LEGEND
SYM CH PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER
10.
09.
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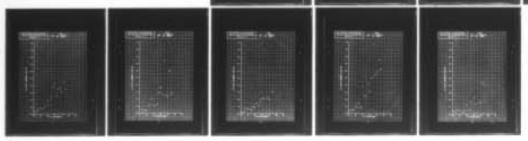

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBDY 10.4D,1.25G NO SLOS
RUN 154 TP 4
LEGEND
SYM CH PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER


HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOW 10.40-1.256 NO BLOS
RUN 154 TP 5
LEGEND
SYM CH PARAMETER
65 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER
10.
09.
08.
07.
06.
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16.
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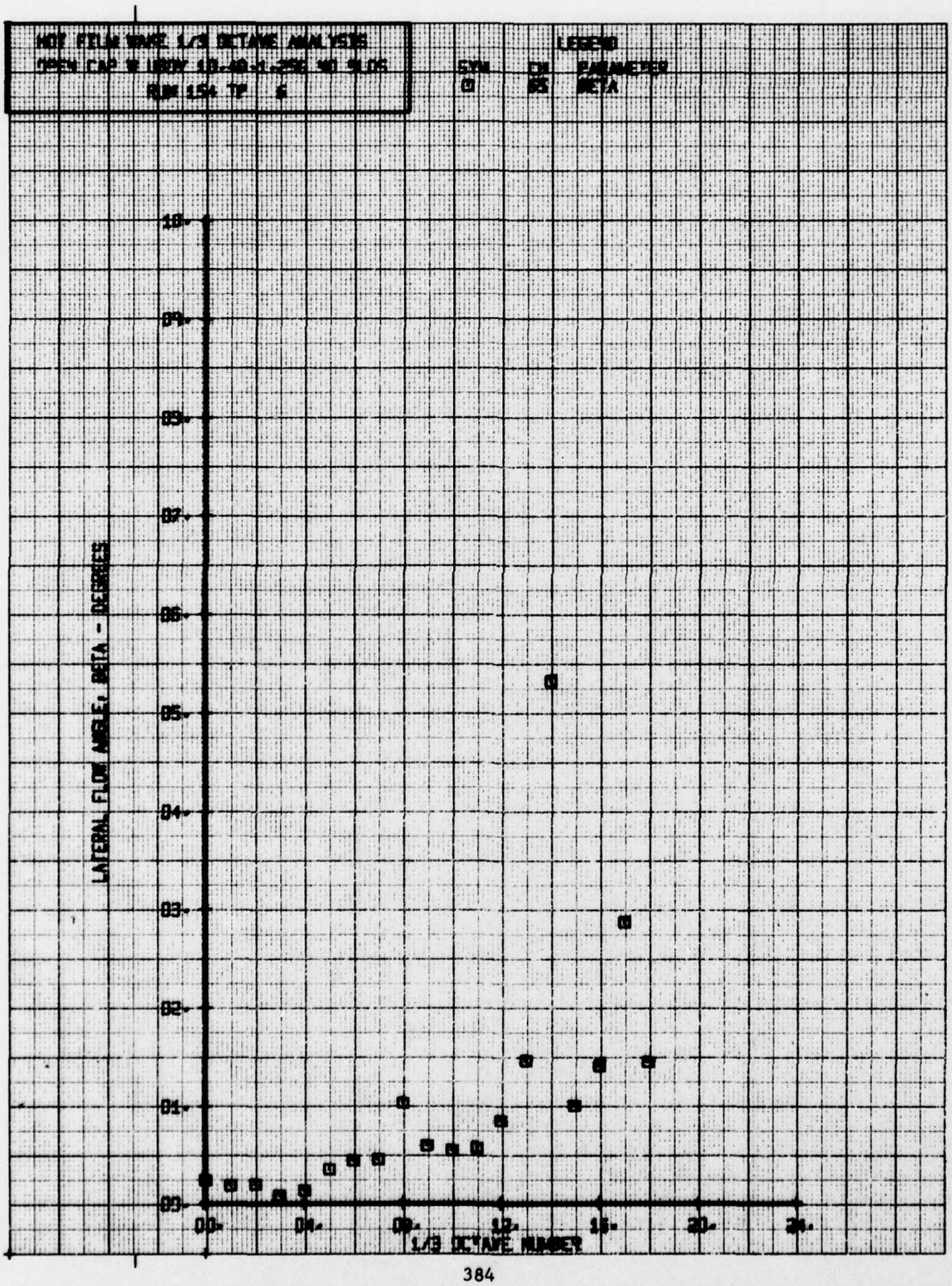
AD-A063 214 BOEING VERTOL CO PHILADELPHIA PA F/G 1/3
INTERACTIONAL AERODYNAMICS OF THE SINGLE ROTOR HELICOPTER CONFI--ETC(U)
SEP 78 P F SHERIDAN DAAJ02-77-C-0020
UNCLASSIFIED USARTL-TR-78-23D NL

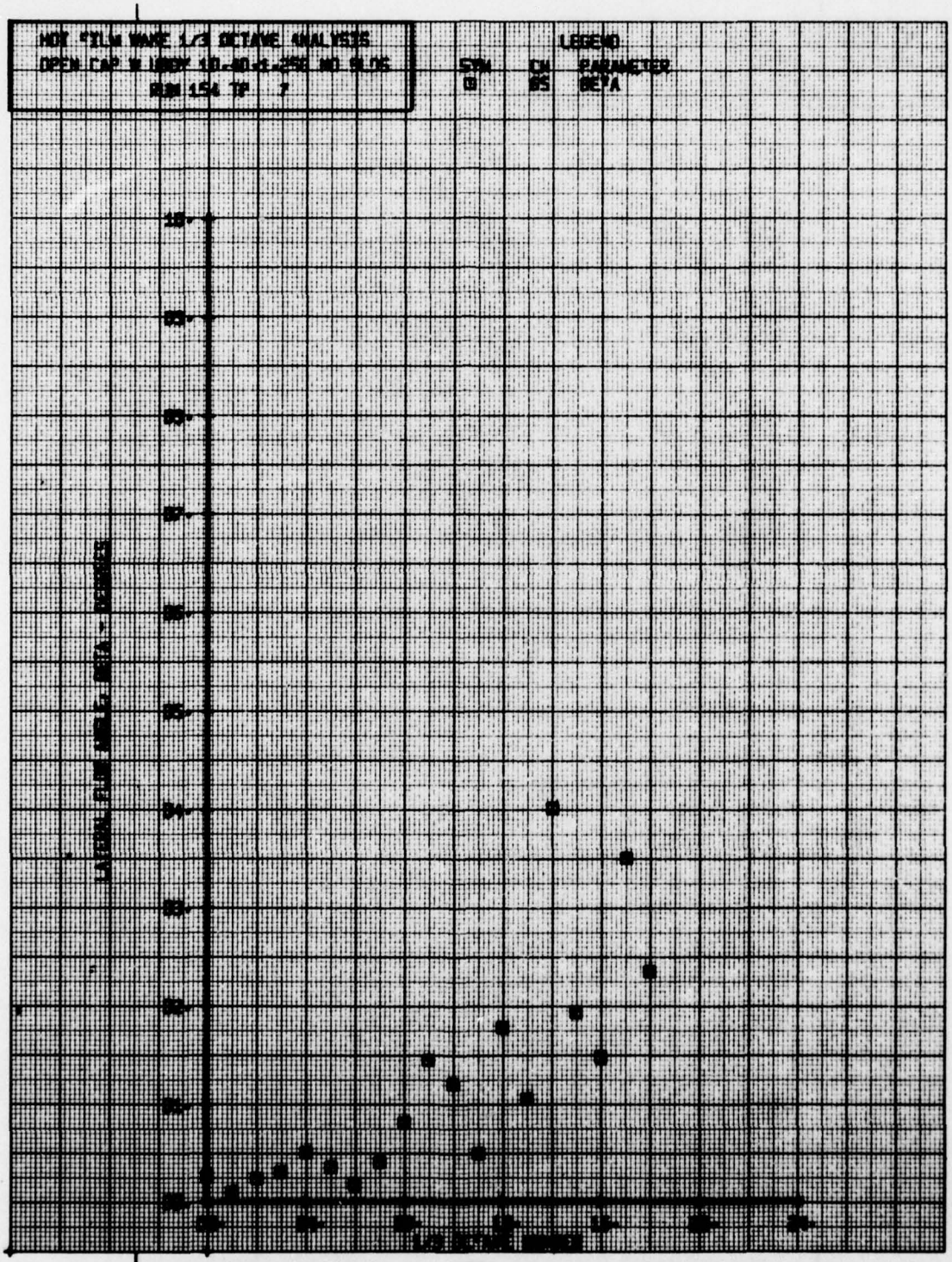
5 OF 5
AD
A063214

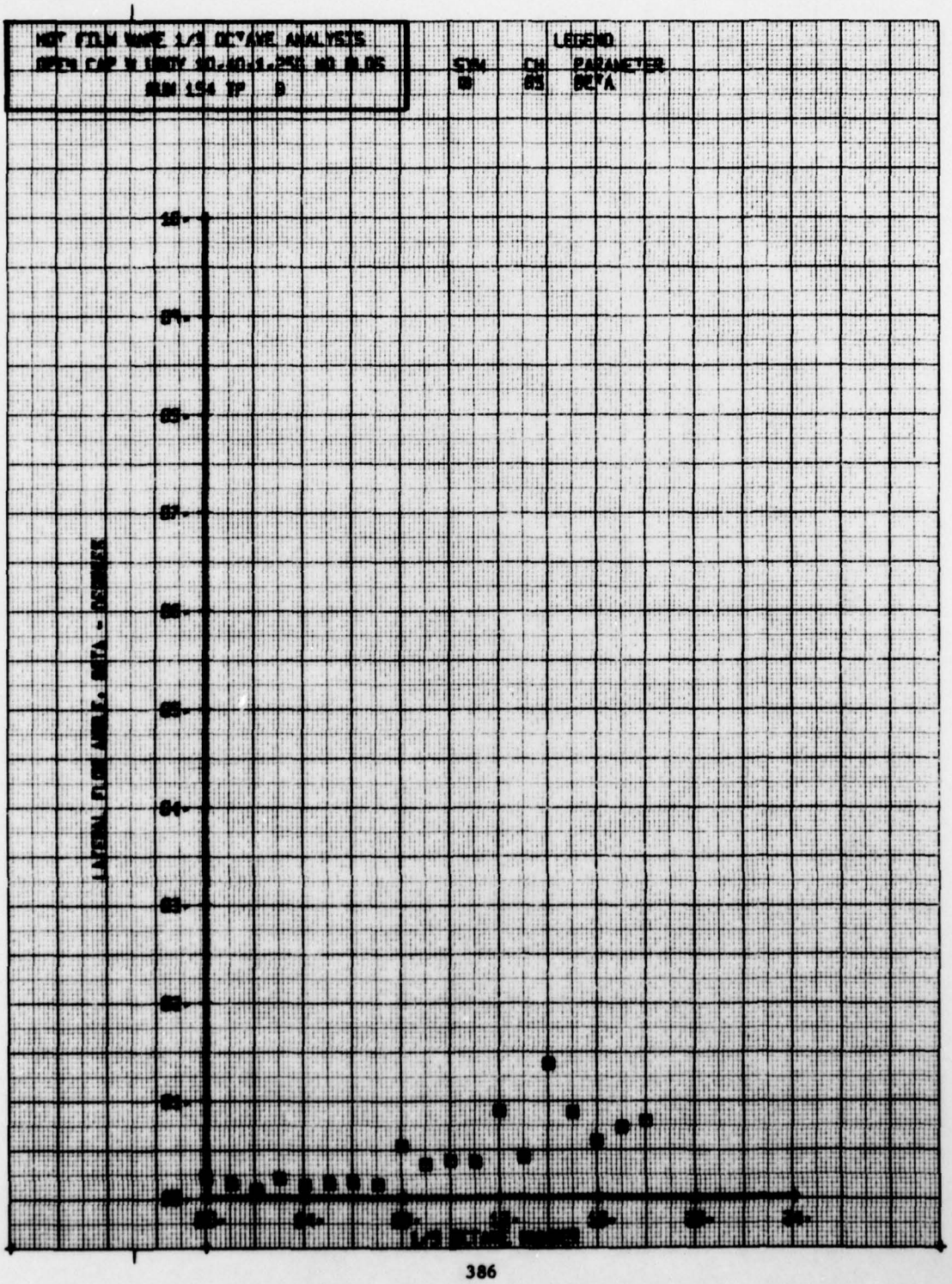


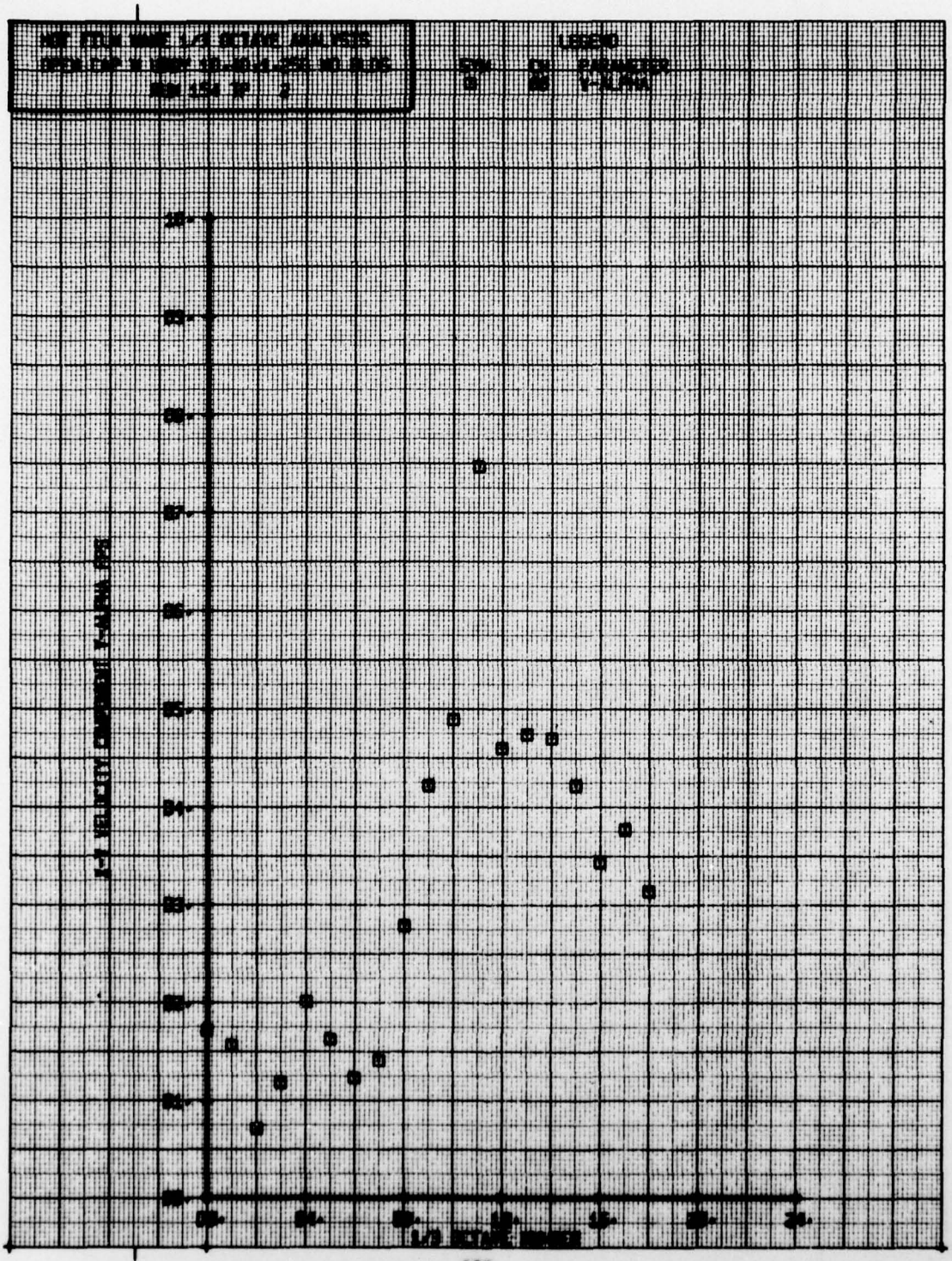


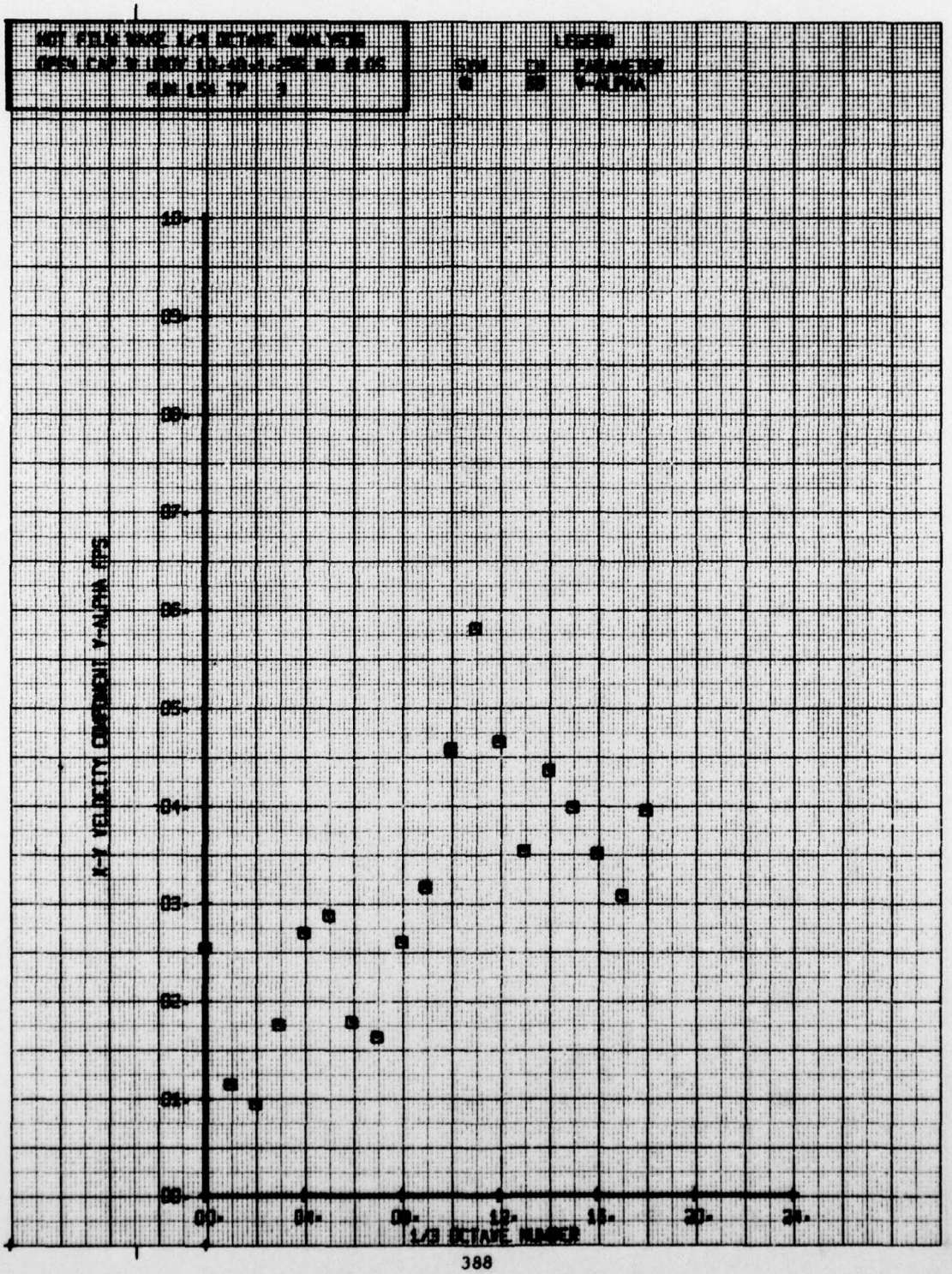
END
DATE
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3-79
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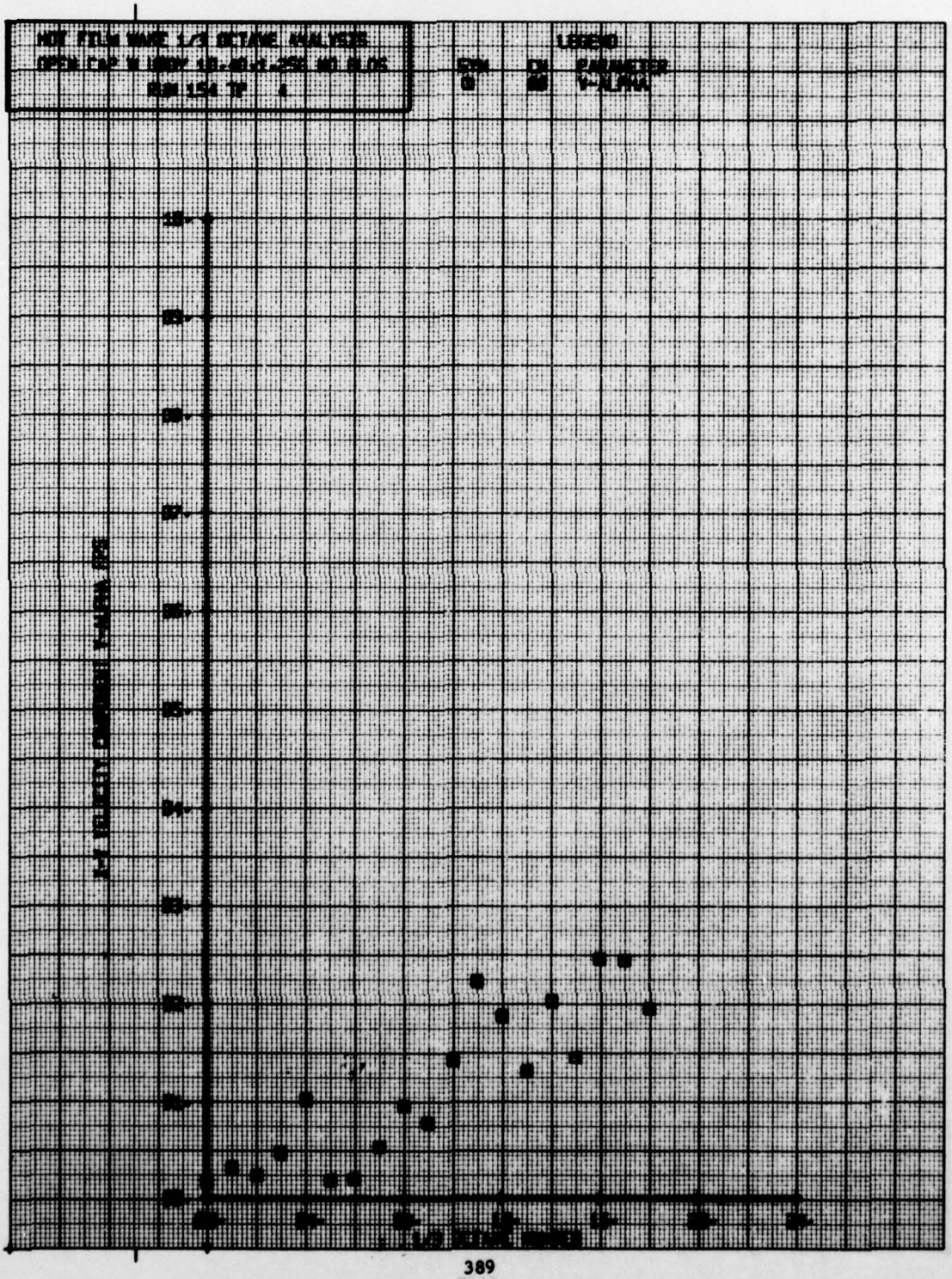

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP 9 LOBOV 10-40-1-25E 90 SLOS
RUN 154 TP 6
LEGEND
SYM CH PARAMETER
0 05 BETA
LATERAL FLOW ANGLE, BETA - DEGREES
1/3 OCTAVE NUMBER

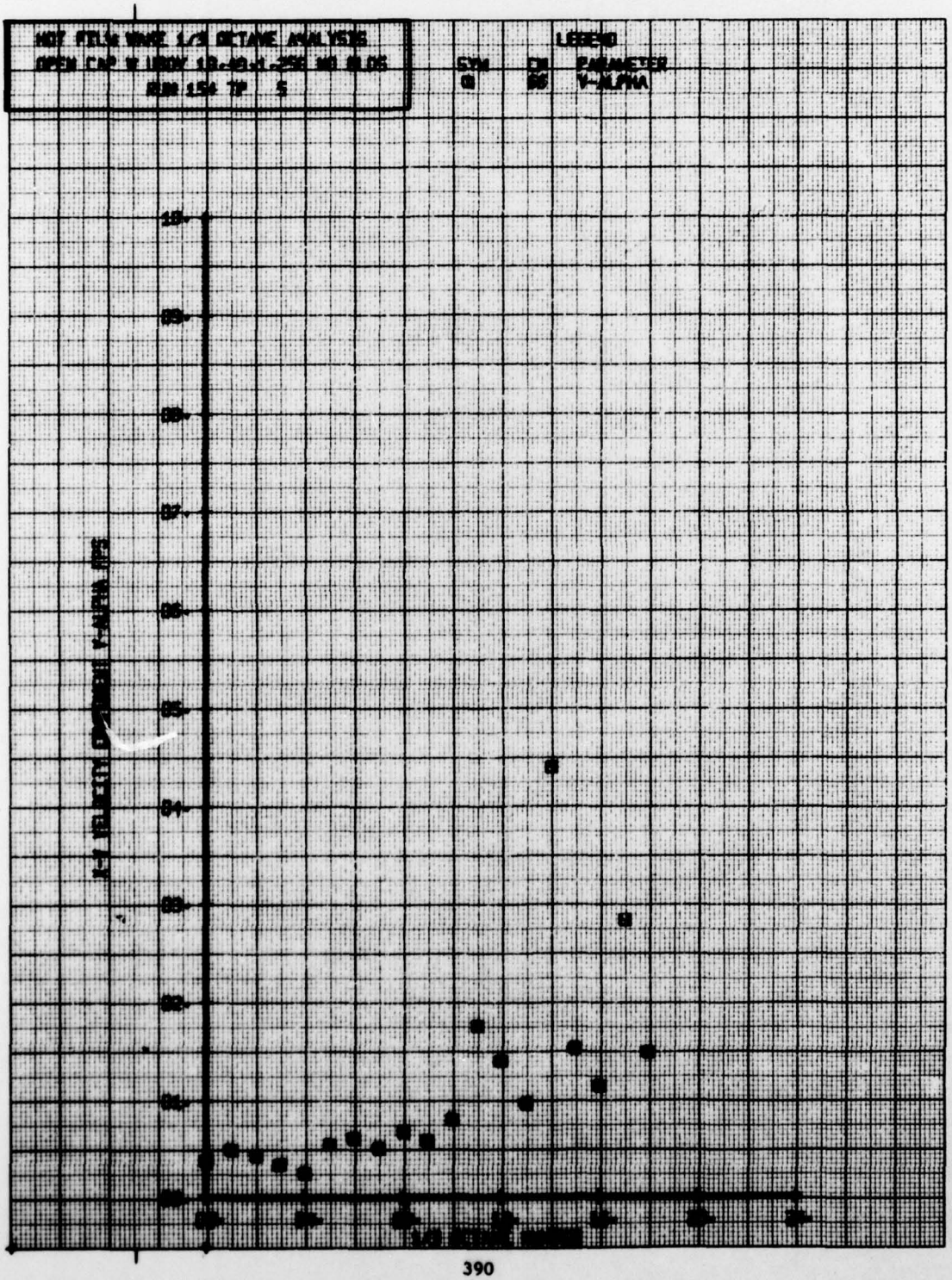

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W LOOSE 10-40-2-250 NO SLOS
RUN 154 TP 7
LEGEND
SYM CH PARAMETER
BETA

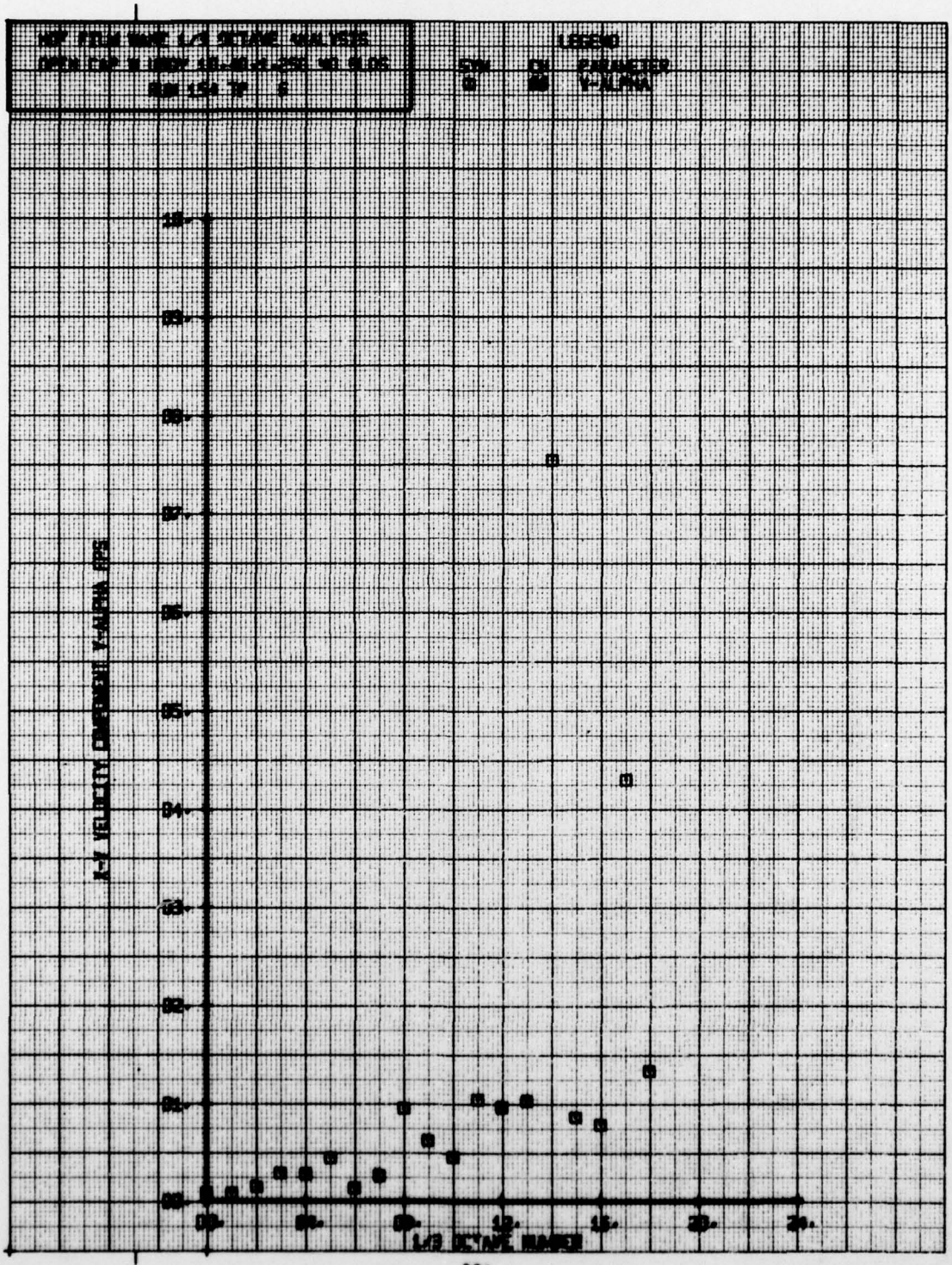

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
RUN 154 TP 9
LEGEND
SYM CH PARAMETER
DELTA

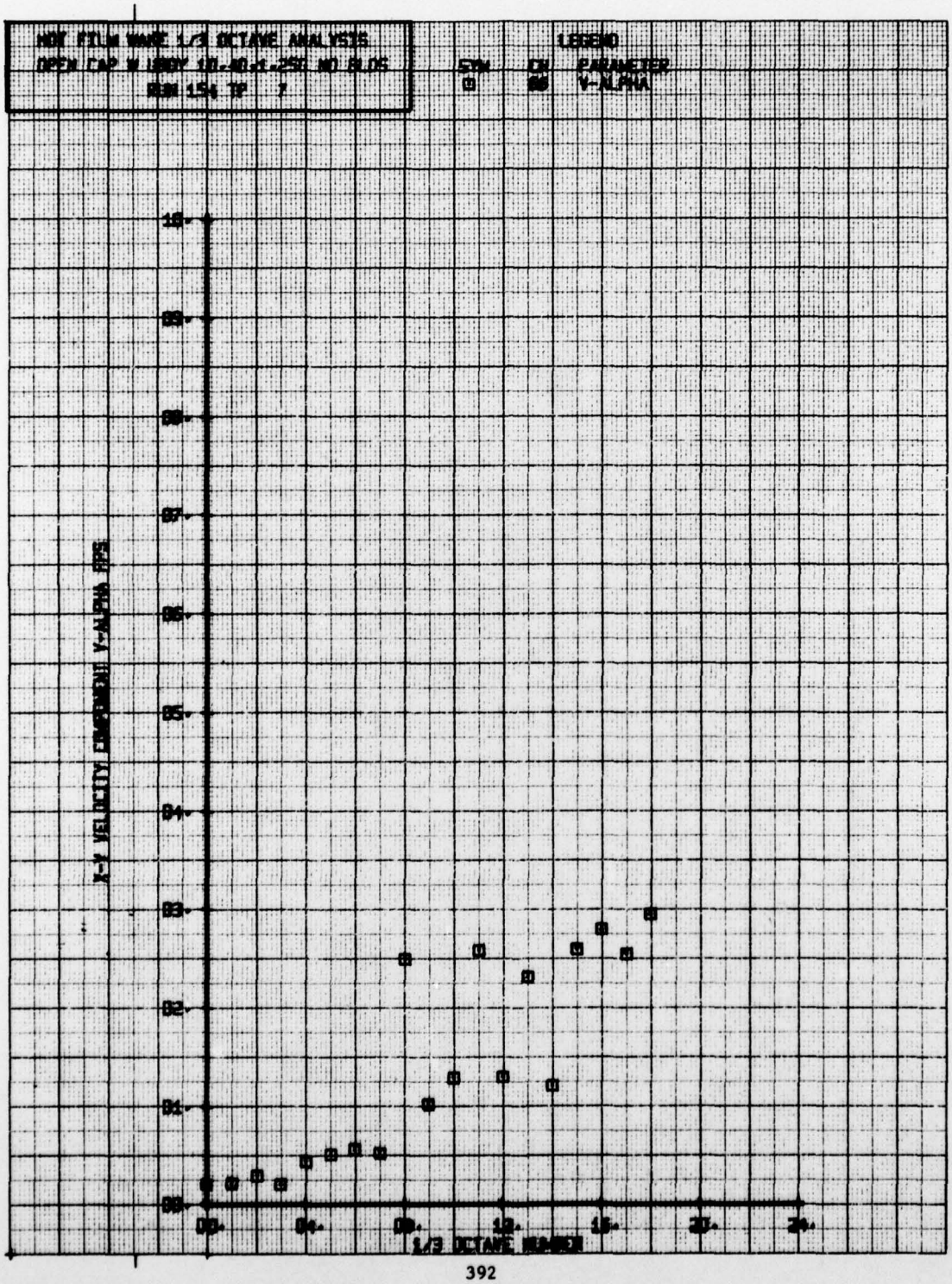


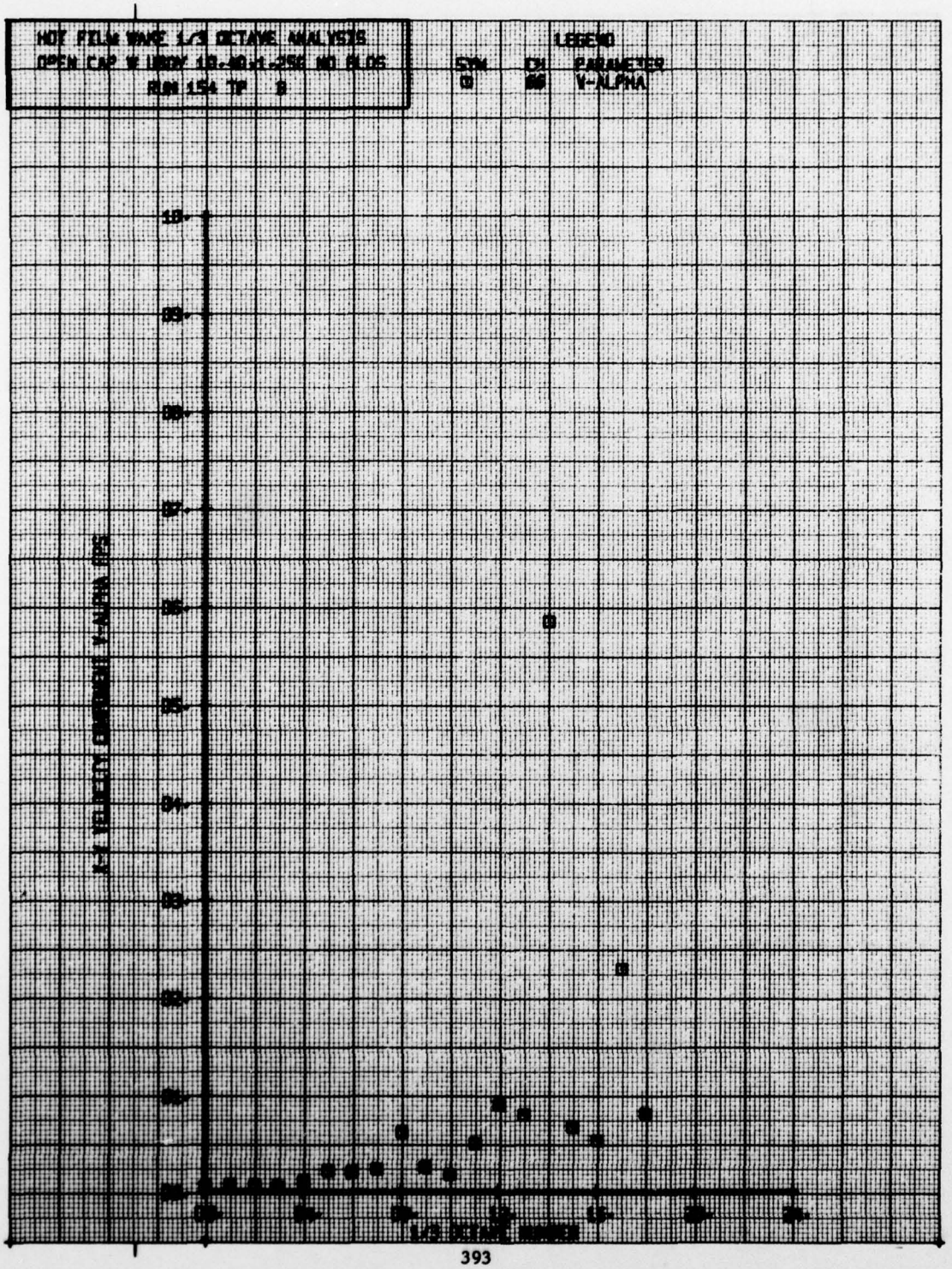

LEGEND
SYM ID PARAMETER
V-ALPHA
X-Y VELOCITY COMPONENT V-ALPHA FPS
1/3 OCTAVE NUMBER

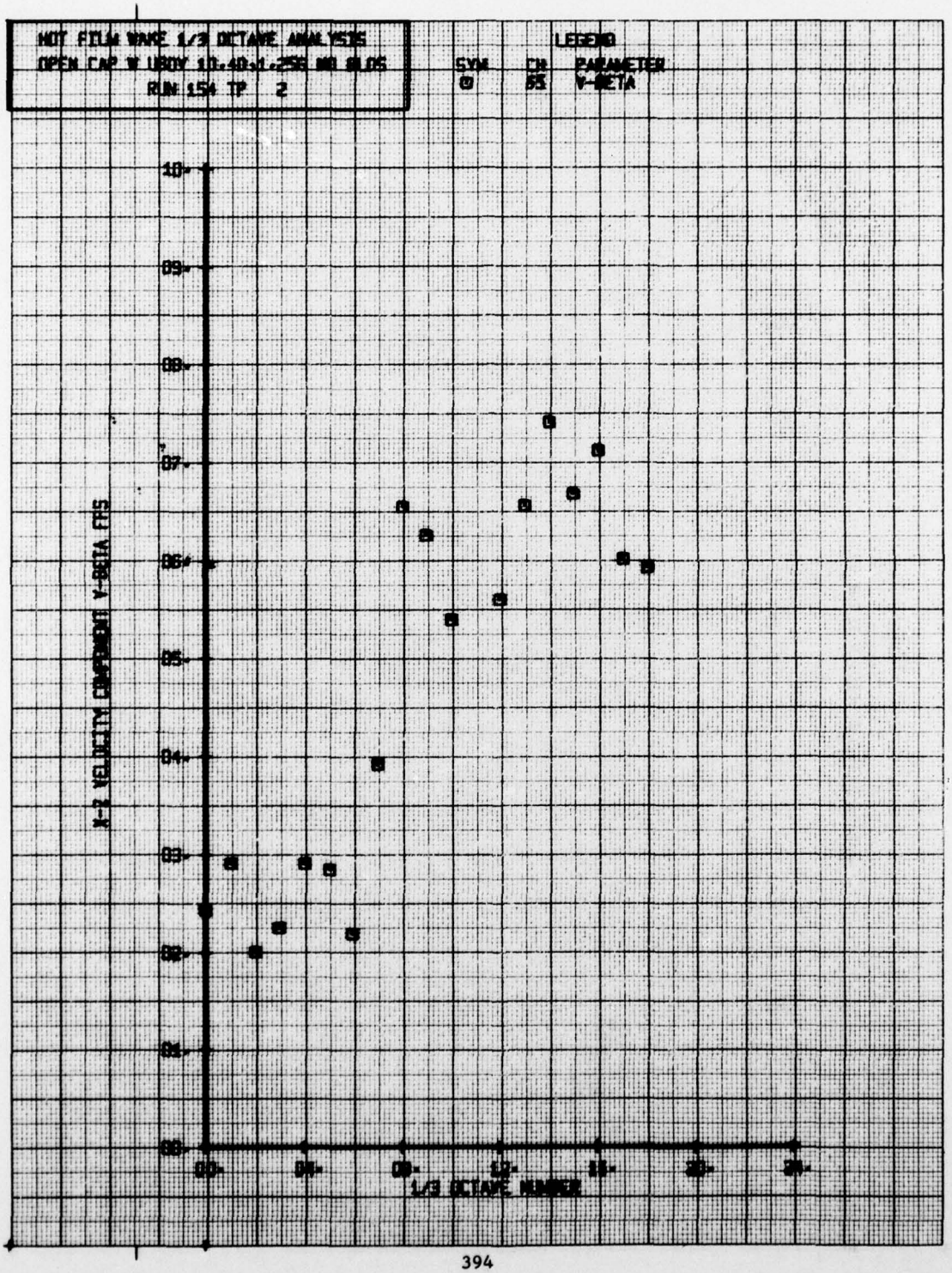


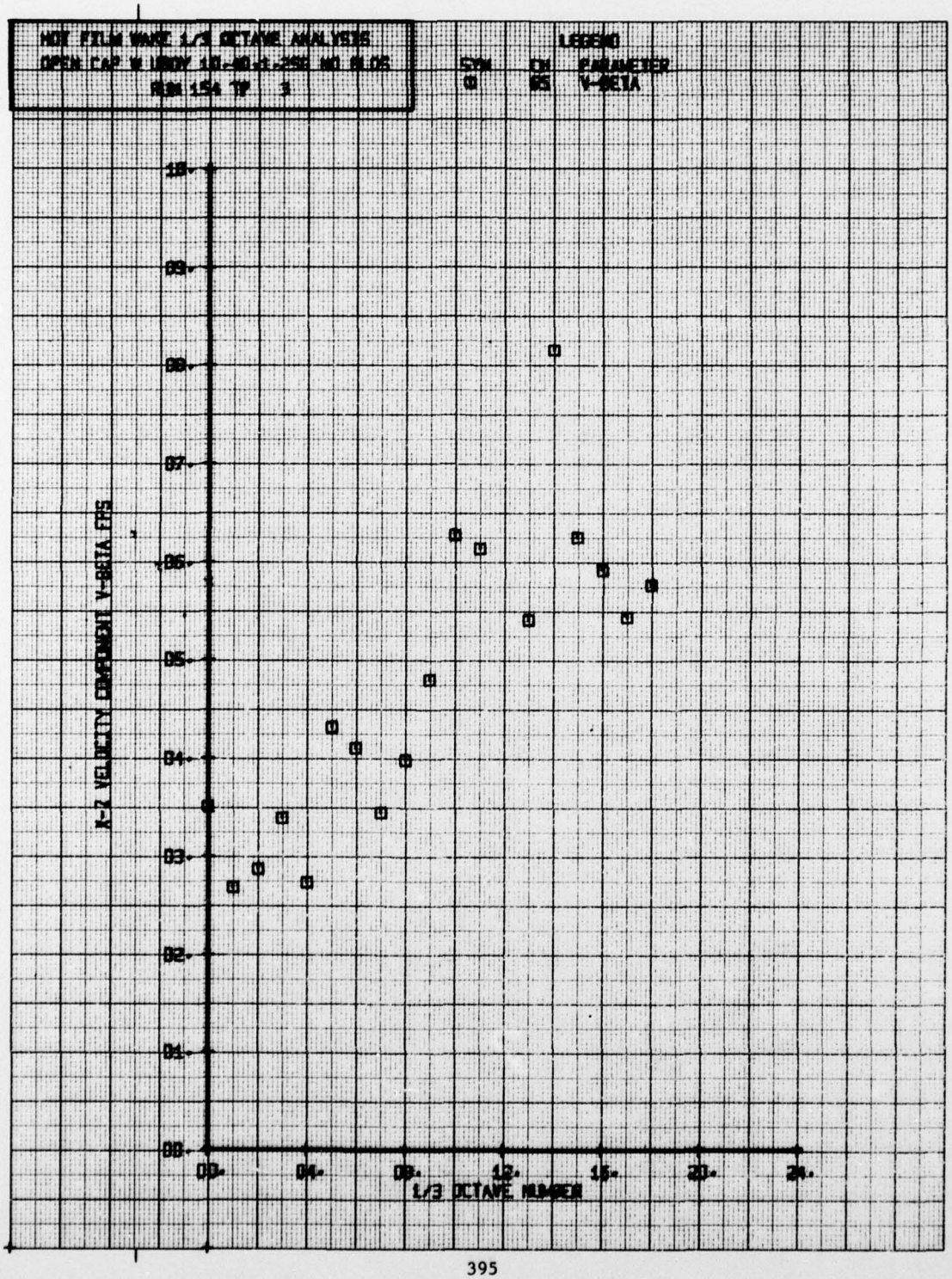

HOT PLUME WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W HDOV 18-40-1-256 NO BLDG
RUN 154 TP 5
LEGEND
SYM CH PARAMETER
01 00 V-ALPHA

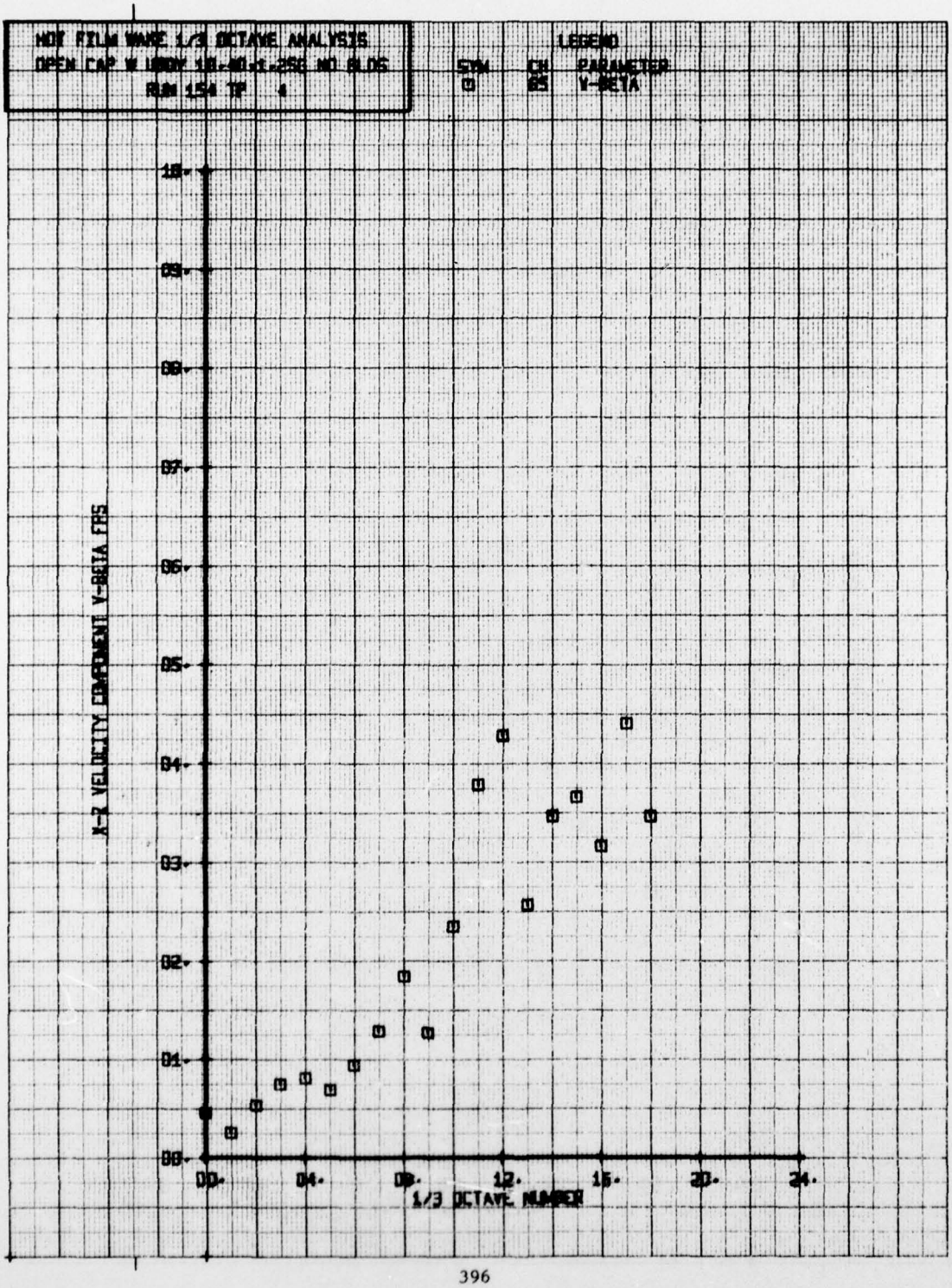

LEGEND
SYM
PARAMETER
V-ALPHA
L/D VELOCITY GRADIENT V-ALPHA (FPS
L/D DISTANCE MARKER

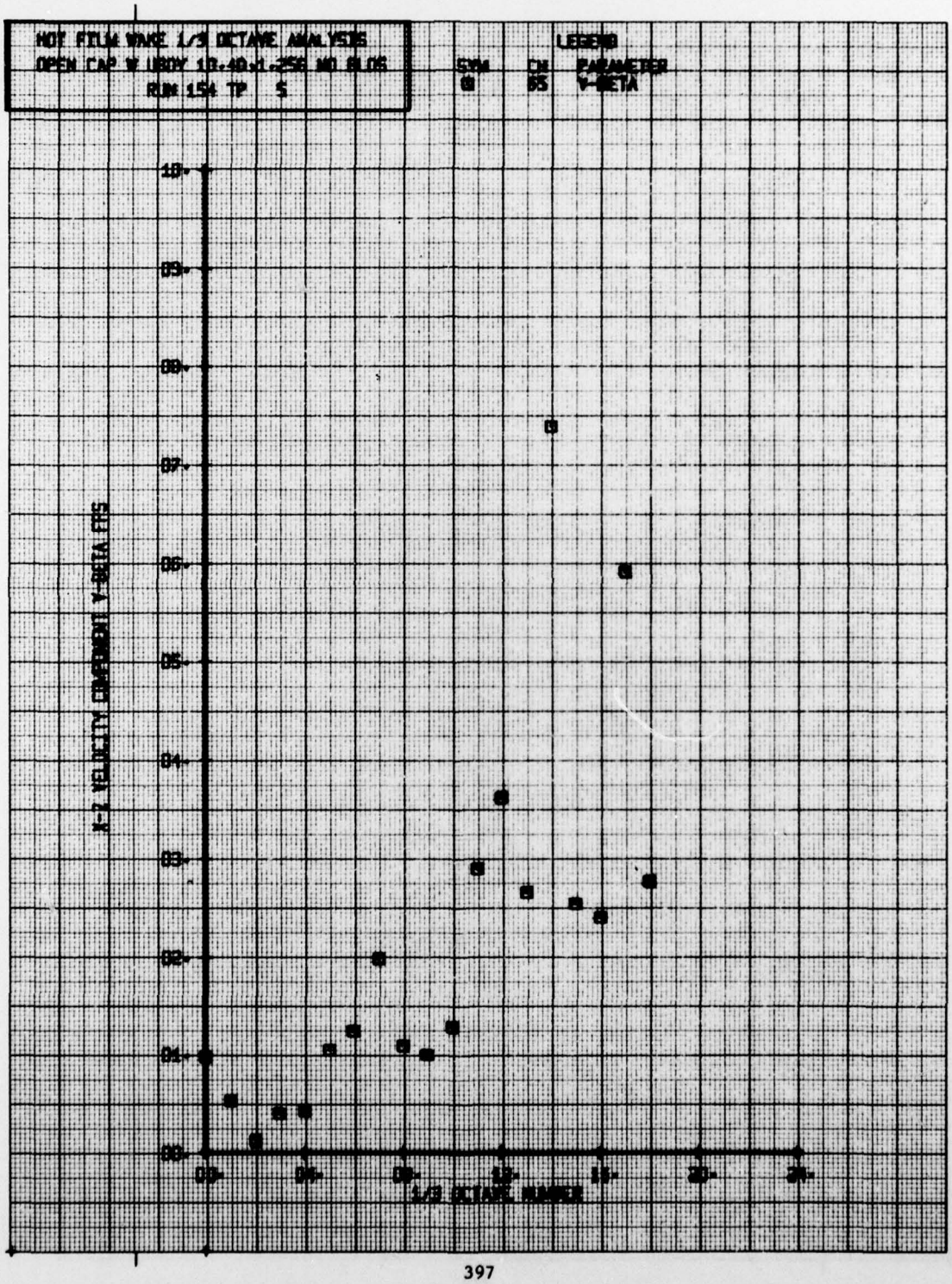

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W BODY 10.40.1.25E NO BLOS
RUN 154 TP 7
LEGEND
SYM CH PARAMETER
V-ALPHA
X-Y VELOCITY SPECTRUM Y-ALPHA RMS
1/3 OCTAVE MEASURE

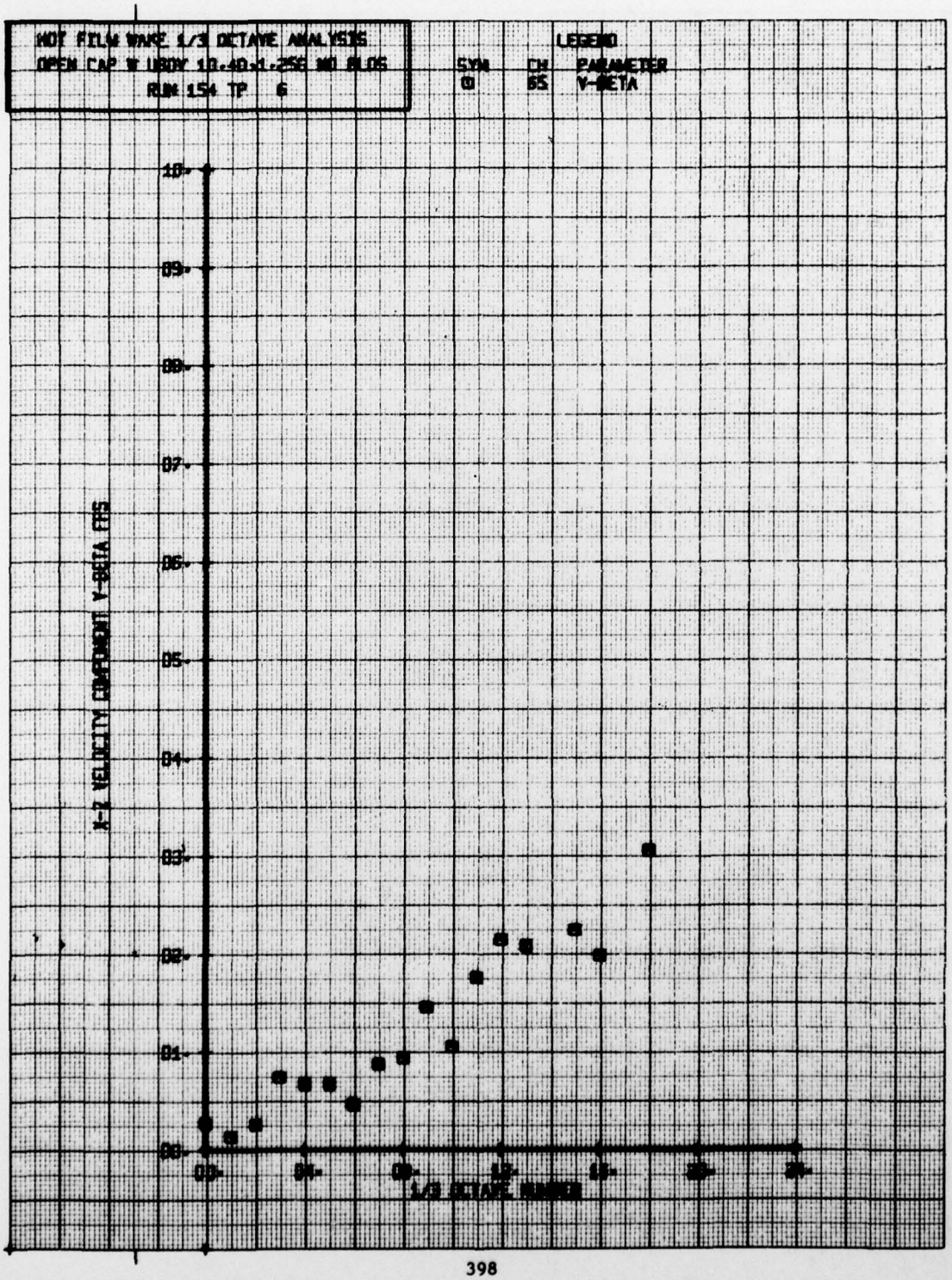

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W LEDGE 10-40,1-256 NO PLOS
RUN 154 TP 8
LEGEND
SYM ID PARAMETER
V-ALPHA
18
89
88
87
86
85
84
83
82
81
80
1/3 OCTAVE BANDS

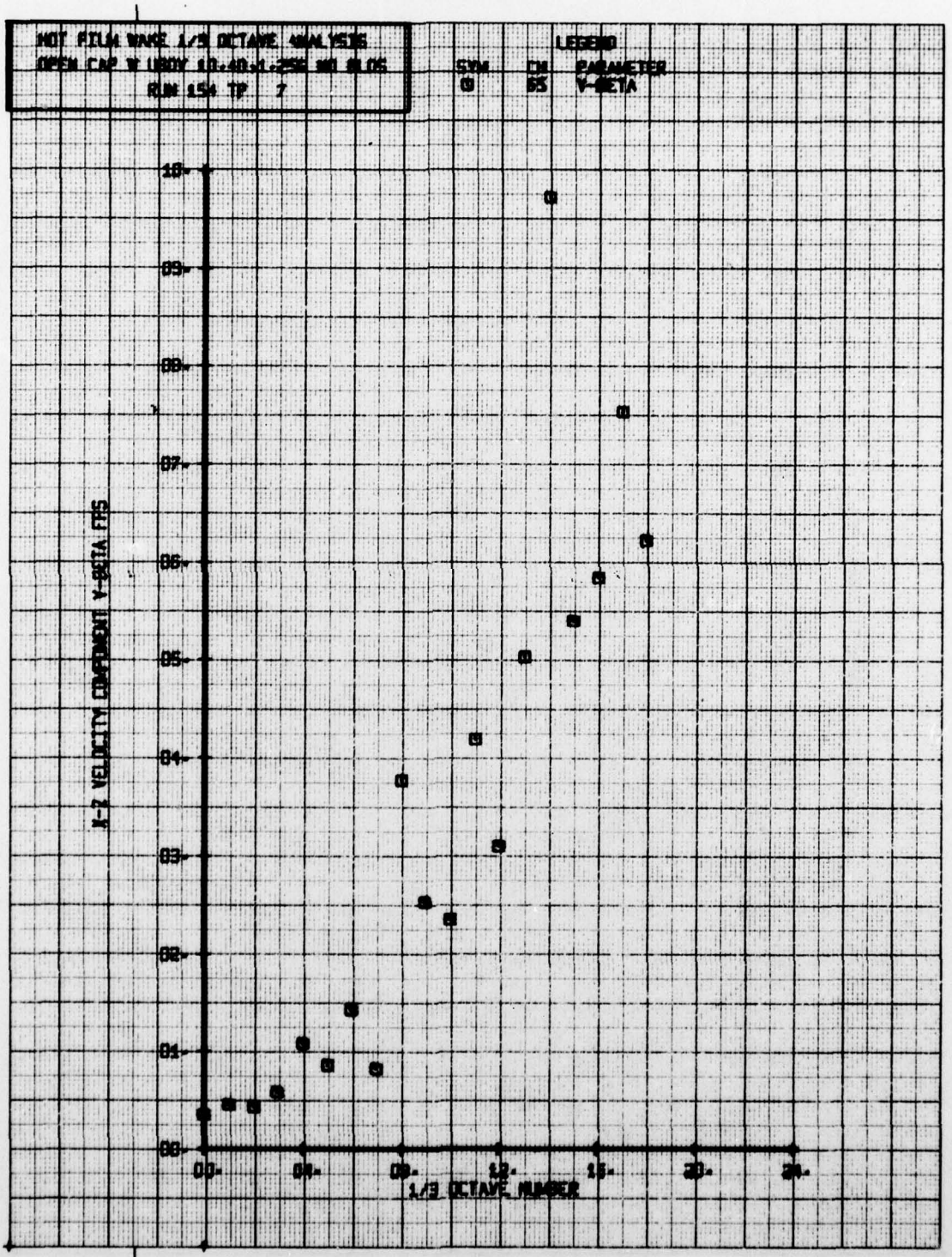

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBOY 10.40.1.256 MB BLDG
RUN 154 TP 2
LEGEND
SYM CH PARAMETER
@ 55 V-BETA
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
00
04
08
12
16
20
24
1/3 OCTAVE NUMBER

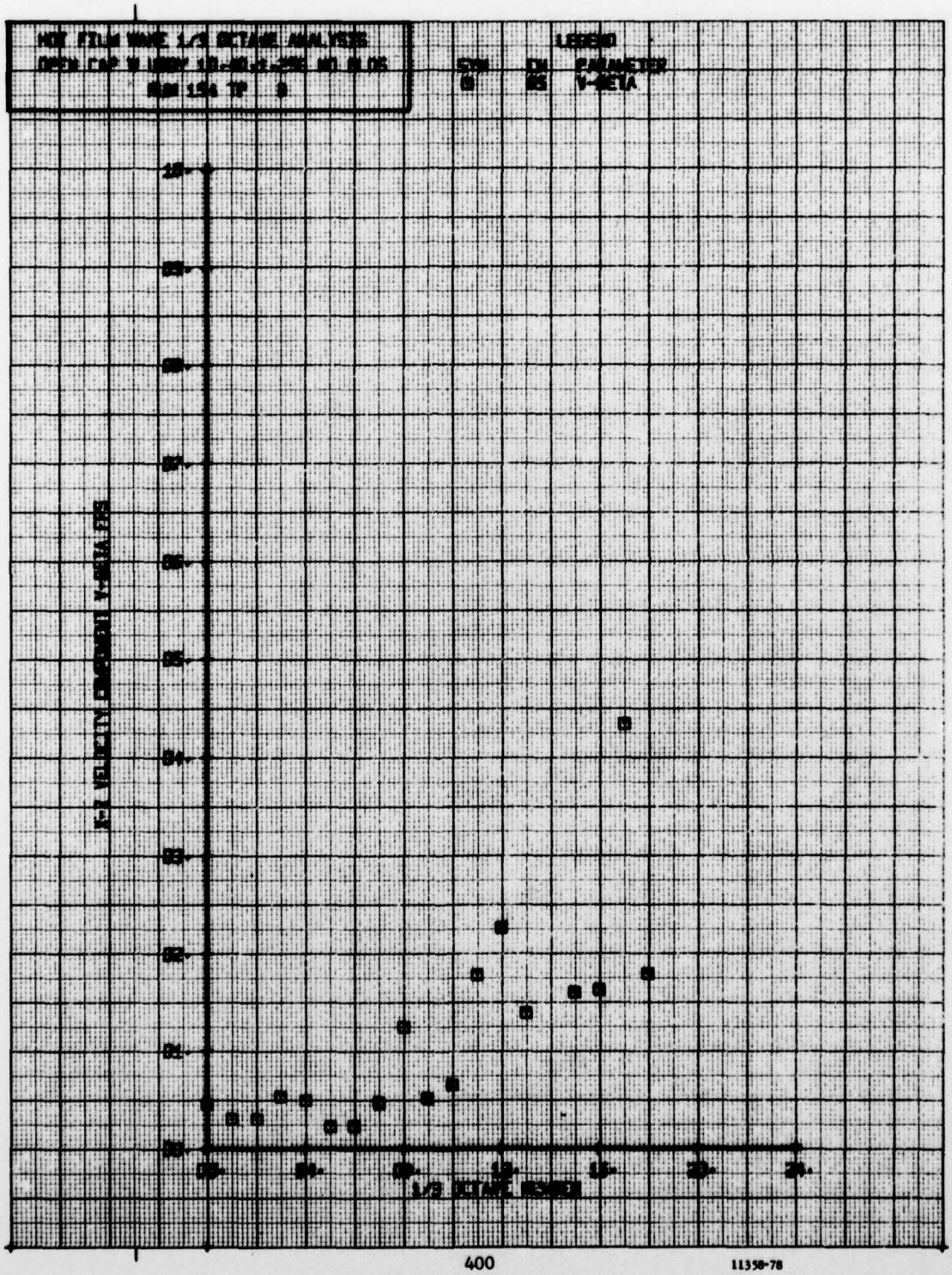

HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W LEDDY 10.-40-1.25E NO BLOS
RUN 154 TP 3
LEGEND
SYM CH PARAMETER
05 V-BETA
A-Z VELOCITY COMPONENT V-BETA FPS
1/3 OCTAVE NUMBER


HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W LOOKY 10.-40.-1.-250 NO BLDS
RUN 154 TP 4
LEGEND
STN CH PARAMETER
0 65 V-BETA
X-2 VELOCITY COMPONENT V-BETA FPS
1/3 OCTAVE NUMBER
00.
04.
08.
12.
16.
20.
24.


HOT FILM WAVE 1/3 OCTAVE ANALYSIS
OPEN CAP W UBDY 10.40,1.250 MO SLOS
RUN 154 TP 5
LEGEND
SYM CH PARAMETER
05 V-BETA
1.0
.9
.8
.7
.6
.5
.4
.3
.2
.1
.0
X-Z VELOCITY CORRELATION V-BETA,FRS
1/3 OCTAVE NUMBER


HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W HBOW 10.40.1.250 NO BLOS
RUN 154 TP 6
LEGEND
SYM CH PARAMETER
@ 65 V-BETA
1.0
.9
.8
.7
.6
.5
.4
.3
.2
.1
.0
X-Z VELOCITY COMPONENT V-BETA RMS
1/3 OCTAVE NUMBER


HOT FILM WAKE 1/3 OCTAVE ANALYSIS
OPEN CAP W (BOW 10.40,1.250) NO BLOS
RUN 154 TP 7
LEGEND
SYM
CM
PARAMETER
V-BETA
1.0
.9
.8
.7
.6
.5
.4
.3
.2
.1
.0
U-2 VELOCITY COMPONENT V-BETA FPS
.0
.5
1.0
1.5
2.0
2.5
1/3 OCTAVE NUMBER



11358-78